Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • SEPTEMBER, 1960 • 50¢
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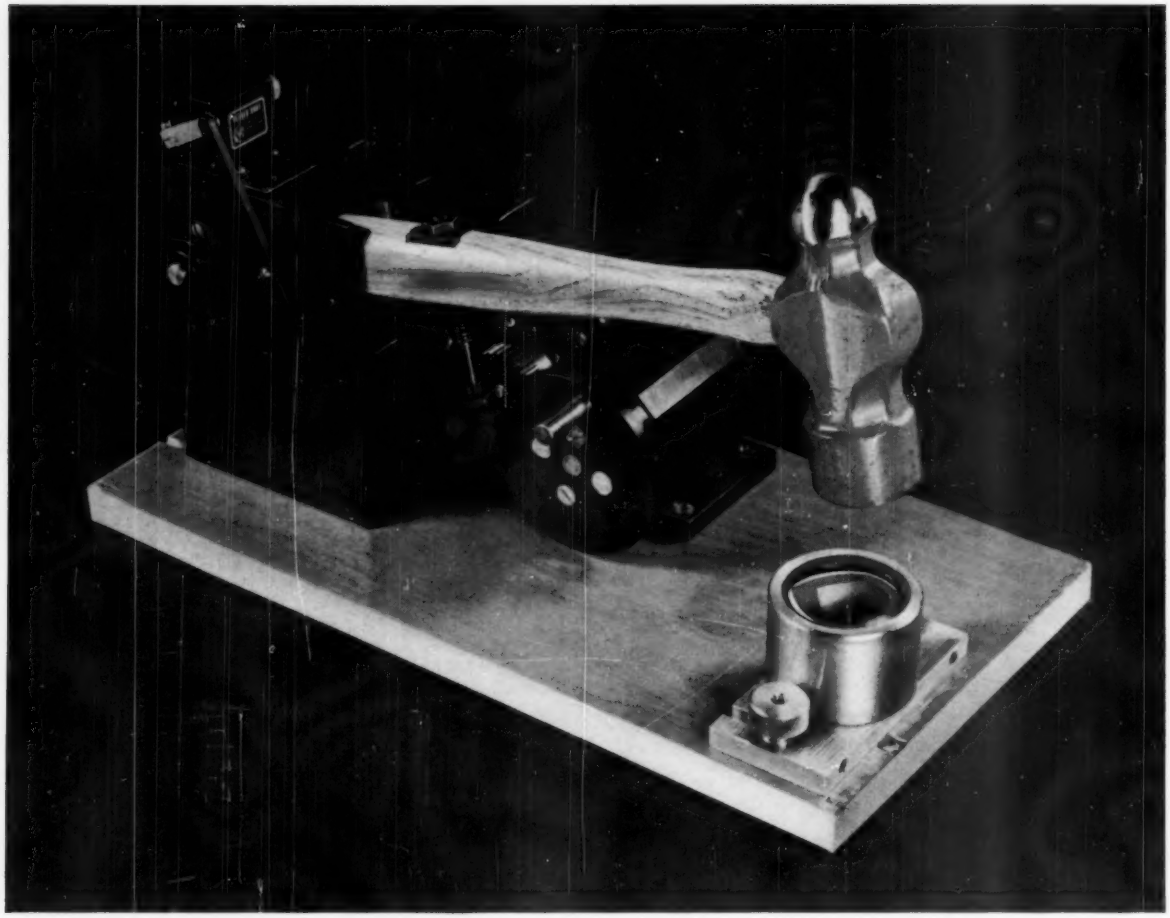

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LOSS STOPPERS

The bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

MAINTENANCE

Grounds Maintenance Tractor ... 383
Baird Machine Co. Application and use of 7 H.P. Beaver riding tractor in maintenance of industrial and institutional grounds is described in new brochure. Literature covers various design and construction features of the tractor itself, plus a variety of optional attachments such as rotary mower, snow plow, roller, etc.

Building Maintenance Manual ... 384
Service Products Div., Johnson's Wax. Detailed information on general maintenance of commercial, industrial and institutional buildings is provided in 28-page manual. A chart details characteristics of 12 different floor surfaces and type of treatment for upkeep of each. Also included are procedures for cleaning and finishing floors and for day-to-day maintenance. Other sections deal with general cleaning, safety, stain removal, furniture polishing, etc.

Industrial Cleaners 385
Brulin & Co., Inc. Revised 8-page pamphlet describes entire line of cleaning compounds and solvents. New items include AC 77, liquid concentrate for rapid cleaning and brightening of aluminum and stainless steel; 815MX, non-solvent liquid degreasing concentrate; Carbon Lifter 500, a powdered alkaline carbon remover and paint stripper for hot tank immersion cleaning; Formula #2832 for cleaning felts in paper mills; and No-Streak, liquid detergent.

Correct Grouting Practices ... 386
Master Builders Co. Shrinkage is the principle cause of grout failure. Avoidance of shrinkage is the subject of this 16-page publication. Outlines and illustrates successful grouting techniques with Embeco nonshrink grout. Methods of grouting different types of equipment, hot and cold weather grouting, recommended mixes and estimating tables are included in this survey.

Rust Inhibitive Paint 387
Skybryte Co. 4-page illustrated catalog describes how Fence-Bond paint, applied directly on rust, stops rust action and provides one-coat protection of chain-link fence. Also included is information on No-Glare coating for window glass, which admits light while filtering glare; aluminum roof coating to reduce summer heat; and other products in the Skyco line.

FIRE PROTECTION

Power Plant Protection 388
Cardox Div., Chemetron Corp. Fire extinguishing equipment for power plants and electrical installations, and the use of carbon dioxide for generator purging and coal bunker inerting are described in this new bulletin. Literature also discusses effective methods of protecting transformer stations and sub-stations against fire.

Fire Emergency Kit 389
Headlite Products. Four-page pamphlet itemizes the equipment contained in three fire kit models. This consists of chlorobromomethane charged extinguishers, asbestos fire blanket, first aid materials, safety tipped bandage shears and illustrated book or chart demonstrating latest first aid techniques. Kit is designed to be hung on the wall in any potential danger areas.

Smoke Ejection 390
Super Vacuum Mfg. Co. This handbook covers the principles and operational procedures of eliminating smoke from confined areas in event of fire or emergencies. The company's Smoke Ejector, utilized in this problem, is said to effect controlled ventilation. It employs a specially designed one-piece blade which sucks air and/or smoke over its hub.

PERSONAL PROTECTIVE EQUIPMENT

Protective Clothing 391
Mine Safety Appliances. A broad line of rainwear and other clothing is described in 12-page brochure. Details and illustrations on a wide variety of suits, coats, pants, aprons, hats, etc., fabricated from neoprene latex. Outlined in the bulletin are such special features as smooth-finish coating, nylon buttons and suspender clasps, and permanent stencilling for identification.

Corrugated Soles 392
Ripple Sole Corp. Illustrated brochure describes how new type of ridged sole reduces foot fatigue by absorbing vibration and creating a springy effect. Also cited is the traction grip provided on wet or slippery surfaces.

INDUSTRIAL HYGIENE

Noise Prevention 393
Allied Witan Co., Inc. 12-page catalog illustrates typical sound control applications, with graphs showing reduction of noise in decibels and as distinguished by the human ear. Includes charts showing flow rates and operating specifications of new silencers and diffusers, as well as information on applications.

Air Pollution Control 394
Oxy-Catalyst, Inc. Twenty-page engineering and technical manual describes com-
(Continued on the next page)

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Free Bulletins (Cont'd)

pany's oxidation catalyst systems for industrial processes. Illustrated text provides detailed data relating to air pollution control, waste heat recovery and condensate elimination. Sample calculations are provided to help engineers and consultants compute relative required Oxy-cat installations for particular applications.

Handling of Toluene Diisocyanates 395

National Aniline Div., Allied Chemical Corp. 12-page bulletin covers the main points for the handling and storage of these highly-reactive chemicals. Of particular importance are the sections and recommendations dealing with personnel protection and proper countermeasures to use in case of accidental exposure.

MISCELLANEOUS

Relief Valves 396

Farris Engineering Corp. New 28-page catalog of liquid relief and safety relief valves for marine service, fire pump service, hydraulic pressure systems, liquefied gases, chemical corrosive service, etc., includes useful sizing information, capacity tables, weights and dimensions and application data. Well illustrated booklet is arranged to simplify valve selection.

Materials Handling 397

Chaney Products. Omnibus broadside describes full line of products including various types of ramps, pallets and pallet rollers. Specifications for the ramps and a simplified formula for determining the span of gap and height differential between railroad car floor and platform are shown.

Flexible Tubing 398

Flexible Tubing Corp. New methods for handling air, liquids and light solids with nonmetallic flexible tubing are explained in a new manual which provides a full description of the varied forms, major advantages and uses of the tubing. The tubing is a synthetic material or fabric cover supported by a coiled spring. It is said to be applicable to a wide variety of problems.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

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	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
107	Protective Clothing
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110	Safety Gloves
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113	Oil-Resistant Soles
114	Welding Helmets
	FIRST AID AND HYGIENE
122	Sanitary Drinking Facilities
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	FIRE PROTECTION
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141	Safety Cans
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Key Number	Subject
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145	Drum Safety Valve
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148	Watchmen's Control Systems
	LIGHTING AND WARNING DEVICES
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192	Safety Awards & Emblems
193	Employee Safety Guide
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Safety Maintenance

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Cover picture from Allis-Chalmers: A fabricated impeller for a reversible pump-turbine is preheated in preparation for vane welding.

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE

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● READ THAT LABEL

On those rare occasions when the average man reads any reference to poisons, he draws a mental picture of cyanide of potassium pellets quickly swallowed by the cloak-and-dagger fraternity, concoctions found in a forest of glass-filled chemical laboratories or the dubious hospitality of the more lethal Borgias.

The United States Public Health Service brings the picture into sharper focus and, literally, closer home. In this country, an estimated 200,000 accidental poisonings occur every year with several thousand fatalities. Over four-fifths of all fatal accidental poisonings occur in the home. Alcohol and barbituric acid and its derivatives are the most frequent cause, but in the case of children overdoses of aspirin are by far the chief cause of accidental poisoning.

It is not difficult to imagine the terror suffered by a panic-stricken parent when a child has swallowed a poison or an overdose of a drug as commonplace as aspirin. Tragically, however, in the past the parent has not known that the household kitchen, the bathroom or the broom closet can be an open door to death.

It is a blessing that, with a few strokes of his pen, the President of the United States recently signed into law a measure requiring that tens of thousands of every-day household products be labeled hazardous. We can thank the American Medical Association and other health-minded organizations for their successful and, what often must have been, discouraging labors to enact into law the Federal Hazardous Labeling Act which provides that any hazardous product not so labeled is misbranded and therefore liable to seizure, with a heavy fine or possible jail sentence for the manufacturer.

Too many spot removers and so-called dry cleaning preparations are dangerous when swallowed and deadly when inhaled in a poorly ventilated room in a very short time. The cleaning fluid can set up damage to the liver and kidneys serious enough to kill if the product contains carbon tetrachloride. Household bleaches, certain metal cleaners and rust removers are extremely poisonous and even clothes-washing detergents can contain alkaline chemicals poisonous to the human system if taken internally. Other detergents can cause serious inflammation of the skin.

Obviously, the matter of accidental poisonings and overdoses is the object of increasing concern, to industry as well as to the general public.

A case in point is the handy chart covering first aid against poisonings and overdoses which was published in the February issue of SAFETY MAINTENANCE. The response from varied industries was so great that we reprinted this chart in an improved form in the July issue and, solely as a public service, arranged to provide reprints. The entire gamut of industry including railroads, steamship companies, breakfast-food makers, public utilities, steel plants, insurance companies, lumber and logging interests—in fact, the blue-chip companies of the United States and Canada have expressed deep interest in providing this chart to their employees as their own good-will gesture calculated to prevent possible tragedy in the homes of their workers.

This first aid chart is undergoing still further revisions to include new additions, all carefully checked by outstanding medical authorities representing specialists in internal medicine as well as senior pediatricians. For the first time in its sixty-year history, therefore, SAFETY MAINTENANCE shortly will publish for the third time as our contribution to human welfare a chart that belongs in every medicine or kitchen cabinet as well as in every industrial first aid station.

In the meantime, keep household cleaning products and all medical preparations, especially aspirin, out of the reach of small children and take time to read that label . . . these precautions and proper first aid measures can save a life.

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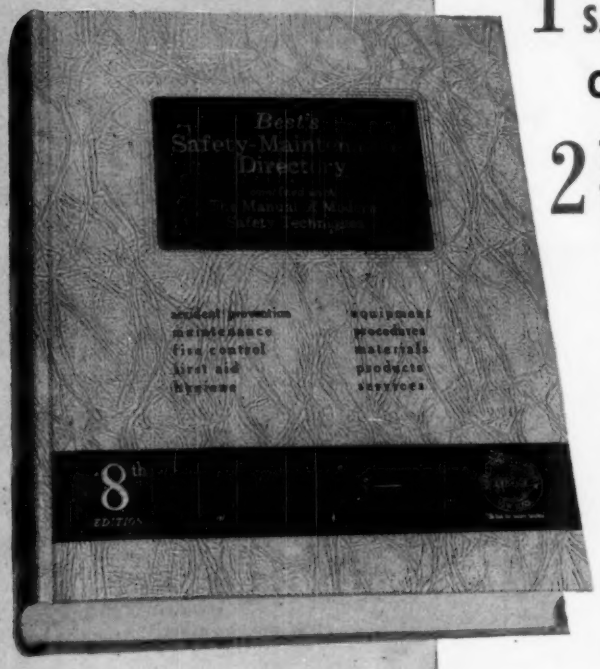

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THE FUTURE SHOWS

Cleveland, Ohio *September 27–29*

1960 Northeastern Ohio Safety Conference & Exhibit (Hotel Carter). R. W. Ramsdell, General Chairman, East 9th at Superior, Cleveland 14, Ohio.

Chicago, Ill. *October 17–21*

Forty-Eighth Annual National Safety Congress and Exhibit (Conrad Hilton, Pick-Congress, Sheraton Towers, Morrison, and La Salle Hotels). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Detroit, Mich. *October 24–27*

Sanitation Maintenance Conference & Show (Sheraton-Cadillac Hotel). Gerard J. Riley, Executive Secretary, Institute of Sanitation Management, 101 W. 30th St., New York 1, N. Y.

Pittsburgh, Pa. *October 26–27*

Twenty-Fifth Annual Meeting of the Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, Managing Director, Industrial Hygiene Foundation, 440 Fifth Ave., Pittsburgh 13, Pa.

New York, N. Y. *December 12–15*

Industrial Building Exposition & Congress (Coliseum). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Chicago, Ill. *January 23–26*

Twelfth National Plant Maintenance & Engineering Show and Conference (International Theatre). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Fort Wayne, Ind. *March 14–15*

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce Bldg., Ft. Wayne, Ind.

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(For details, use Key # W-4 on card on page 1)

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BIRMINGHAM, ALABAMA
Safety Supplies & Service Co.
1540 Montclair Road

BOSTON, MASS.
General Equipment Corporation
261 Franklin Street

BUFFALO, N. Y.
The Watson Company
1362 Kenmore Avenue

CEDAR RAPIDS, IOWA
Continental Safety Equipment, Inc.
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CINCINNATI, OHIO
Williams & Co., Inc.
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CLEVELAND, OHIO
Williams & Co., Inc.
3700 Perkins Avenue

COLUMBUS, OHIO
Williams & Co., Inc.
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DALLAS, TEXAS
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19225 Conant Avenue

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Safety, Incorporated
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KNOXVILLE, TENN.
Safety Equipment Distributing Co.
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LARGO, FLORIDA
Car-Mad Equipment Co., Inc.
570 Indian Rock Road

LINDEN, N.J.
Guardian Safety Equipment Co.
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LOS ANGELES, CALIF.
Guardian Safety Equipment Co.
7223 South Main Street

LOUISVILLE, KENTUCKY
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1109 South Preston Street

MILWAUKEE, WIS.
Universal Safety Equipment Co.
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MOLINE, ILLINOIS
Standard Industrial Products
3731 10th Avenue Ct.

NEW YORK, N.Y.
(See LINDEN, N. J.)

OMAHA, NEBRASKA
Continental Safety Equipment, Inc.
8715 Shamrock Road

PEORIA, ILLINOIS
Standard Industrial Products Co.
3527 W. Farmington Road

PHILADELPHIA, PA.
Guardian Safety Equipment Co.
214 South 45th Street

PITTSBURGH, PA.
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901 Pennsylvania Avenue

PORTLAND, OREGON
LaGrand Industrial Supply Co.
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RICHMOND, VIRGINIA
Industrial Supply Corporation
1905 Westwood Avenue

ST. LOUIS, MISSOURI
Safety, Incorporated
3230 Olive Street

ST. PAUL, MINN.
Continental Safety Equipment, Inc.
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SALT LAKE CITY, UTAH
Universal Safety & Fire Equipment Co.
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TUCSON, ARIZONA
Grinnell Fire Fighting Equipment Co.
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TULSA, OKLA.
Guardian Safety Equipment Co.
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Medellin 184-301 3ER Piso.

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Soper-Singleton Electric Co.
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MONTREAL, CANADA
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TIPS ON THE WEAR AND CARE OF RUBBER GLOVES

PROPER GLOVE CARE RETURNS "PLUS" PROFITS

Thousands of dollars are lost each year through improper care of industrial workers' gloves. And the toll keeps mounting, with increases in the nation's industrial labor force.

Gloves are an industrial "tool," often with highly specialized uses, such as the very fine, tissue-thin surgical gloves borrowed by industry from the medical profession, for anti-tarnish inspections. They are entitled to the same degree of care as any other specialized plant tool.

The Wilson Rubber Co. offers the following suggestions for glove care and maintenance:

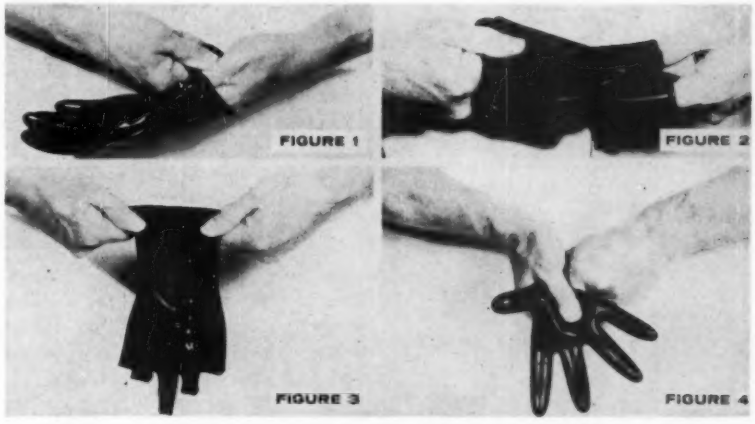


FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

PUTTING ON GLOVES

1. Turn back cuff of gloves about two inches. (If gloves appear to be a snug fit, they should be prepowdered with talc or soapstone for greater ease in putting them on.) Grasp cuff on palm side of glove between thumb and "V" of forefinger (Figure 1). This prevents fingernails from injuring gloves.

2. Insert fingers into glove and, while slowly raising both hands to chest-high, push on glove. Unfold cuff.

3. Repeat this procedure with the other glove.

REMOVING GLOVES

1. Turn back cuff of glove about two inches. Grasp cuff on palm side of glove between thumb and "V" of forefinger (Figure 1).

2. Slowly raise both hands to chest-high and, at the same time, pull off glove (Figure 2).

3. With fingers of glove pointing down and palm side outward (Figure 3) twirl glove upward toward body to trap air inside gloves.

4. Quickly squeeze cuff of glove tightly to hold trapped air (Figure 4). With thumb on palm and forefinger on back, press on bulge in glove to force trapped air to straighten thumb and fingers.

5. Repeat this procedure with the other glove.

AIR-TESTING GLOVES

1. With fingers of glove pointing down and palm side outward, similar to Figure 3, twirl glove upward toward body to trap air inside glove.

2. Squeeze cuff of glove tightly to hold trapped air (Figure 4). With thumb on palm and forefinger on back, press on bulge in glove to further inflate glove.

3. Hold inflated glove close to face and ear. Listen for air escaping from holes.

4. Repeat this procedure with the other glove.

CARE OF GLOVES

1. Never leave your gloves inside-out. This traps vapors which will quickly deteriorate the glove and make them more subject to ozone cracking.

2. Never leave gloves with cuffs folded over. This places the folded part under stress, weakening it and causing it to tear easily.

3. Periodic cleaning of gloves is fundamental to remove the build-up of solvents, de-greasing agents, etc., which shorten glove life. Gloves with "firmhold" or rough finishes require thorough cleaning because the "depressions" or "valleys" forming the finish trap solutions which will deteriorate the glove.

4. Where swelling of gloves occurs, take the gloves out of usage, to permit solvents to evaporate off the glove, thus restoring original shape. Rotate several pairs of gloves in this situation, since swelling of glove reduces its resistance to tearing.

5. Above all, wear gloves that fit properly. Proper fit eases putting on and removing gloves without abusing them.

Industrial gloves are the first line of defense against serious occupational hazards to workers' hands. At any cost, they are still the cheapest form of safety insurance.

Pictures by courtesy of The Wilson Rubber Co.

Inspections Spotlight

THE TECHNIQUES OF SAFETY INSPECTIONS

by **ROBERT BEESON**
Supervisor of Safety & Training
Perfect Circle Corporation
Hagerstown, Md.

Every industry has a large inspection department checking its product before shipping to the customer. Trying to manage a safety program without safety inspections would be like trying to manage a business without an inspection department. You just can't do it and succeed.

The No. 1 purpose of safety inspection is to spot unsafe conditions and practices and have them corrected, but you accomplish other things at the same time. When you correct unsafe conditions you prove to your employees that your company really believes in safety.

Inspections help to sell safety to employees. Every time an employee sees an inspection being made in his department it demonstrates the company's interest in safety and perhaps will encourage him to inspect his own work area. Safety inspection will give you an opportunity to come in contact with the employee at his work place. You will often get good safety suggestions from employees during these inspections. This brings the employee into the safety program and tends to make him more safety conscious.

There are thousands of unsafe conditions to look for but a few of the general ones are given in the Check List.

The more people you get on your inspection team the more effective your inspection program will be. Here are a few of the people who should be making inspections:

Foreman

Safety Director

Insurance Company Safety Engineer

Plant Manager or Superintendent

Methods and Time Study Engineers

Tool Room and Maintenance men

Safety Committees

Every employee

Foreman: The foreman is the key to any safety program. He is right there with the problem. The foreman should constantly be looking for unusual conditions that might injure his employees, and should see that his employees follow all safety rules. If you get him to do a good inspection job you are well on your way toward your goal of preventing injury.

Safety Director: Like the foreman, every time the safety director goes into the plant he should be looking for any hazard that might be lurking in a spot that has been missed.

The safety director should plan regular inspections. He may have a general inspection each month, fire extinguisher inspection every three months, and hoist and overhead crane inspection every six months. These inspections should be based on need, reports should be made out and follow-up work done to see that the unsafe conditions are corrected.

The Insurance Safety Engineer: This man can be of much value to you in your inspection program. He does not live with your problems every day, therefore may see

INSPECTION

HOUSEKEEPING

Good housekeeping is a "must" if you aim to have a good accident prevention program.

Are aisles marked clearly with painted lines?

Are aisles kept clear of any objects that could cause tripping hazards?

Are machines cleaned regularly?

Are corners cluttered with scrap?

Are tops of lockers and bins dirty?

Are windows and light fixtures clean?

Are your toilets and washrooms clean?

STAIRS

Are the stairs in good condition?

Are handrails provided and are they in good condition?

Is lighting adequate over the stairs?

ELEVATORS

What is the maximum weight limit? Do your men overload your elevator?

Are signal systems, cables and other safety devices in good working order?

Is the floor of the elevator in good shape?

Is there adequate light in the elevator?

Hazards

things that others have overlooked. This man has the benefit of a broad experience from being in several plants and being familiar with many different types of accidents and injuries. He is a specialist, and you should make every effort to correct conditions that he lists on his report.

Plant Manager or Superintendent: Your plant manager knows that unless he operates a safe plant he is not qualified to operate the plant at all. He can be a very valuable member of your safety inspection team. It may be a little high pressure on the foreman but if he knows the plant manager is looking for safety hazards, he will try to keep him from finding any in his department.

CHECK LIST

LADDERS

Are your ladders the right type for the job?

Are they of sufficient strength and in good condition?

Are they provided with safety features?

FLOORS

Are floors free from protruding nails, splinters, holes, oil, water, greases, and loose boards or tiles.

Are floors overloaded?

MACHINERY

Checking machines to see that they are properly guarded is a very important part of your inspection tour. Remember that although you may have the machine guarded for safe operation conditions, your maintenance men may be in places the operators do not go. Your oiler may have to climb on top or behind the machine. See that the machine is guarded for him also.

ELECTRICAL HAZARDS

Is your electrical equipment grounded?

Are extension cords in good condition?

Do you have sub-standard electrical equipment?

Are electricians required to work on hot lines when it is not necessary?

Do you check the condition of coffeemakers, teakettles, fans and heaters which your employees bring in?

(Continued on the next page)

Methods and Time Study Engineers: These men are dealing with the details of getting a production job done. If you have them looking for unsafe conditions they will make it a part of their everyday job to report hazards to you that they may uncover while working in the plant. Many times they will be in a position to correct the hazard by the method they establish in getting the production job done.

Tool Room and Maintenance: Here is another group of men who should report hazards. These men are all over the plant from the roof to under the floors. They should report unsafe tools and equipment and can surely strengthen your inspection program. In many plants, because of the nature of their work, this group may receive numerous injuries, but if they are a part of your inspection program, it will make them more safety conscious.

Safety Committees: A committee to make plant inspections is common in most safety programs. The

FIRE HAZARDS *(Continued—from page 13)*

If you have smoking areas, are they clearly marked?

Do you allow flammable liquids to be stored and carried through your plant in glass containers?

Are there places where flammable vapors can collect that should be ventilated?

Are your fire extinguishers, hose and other fire-fighting equipment checked regularly to see that they are in good condition?

Is your fire-fighting equipment easy to get to, or is it blocked by material being stacked in front of it?

Are fire doors in good working condition?

If you have sprinkler protection, are the valves open? Are the alarms working? Are enough men trained to know where the shut-off valves are so the water can be shut off quickly after the fire is out, but not too soon?

Do you really know what explosive materials you have in your plant?

PROTECTIVE CLOTHING

Is protective clothing (goggles, safety shoes, hard hats, etc.) made available to the job?

Is protective clothing in good condition?

FIRST AID

Are first aid facilities adequate?

Do your supervisors know the new method of artificial respiration and do they know how to control serious bleeding?

Are stretchers provided in the plant?

Do your employees know where the first-aid room is and that every injury is to be reported?

GENERAL CONDITIONS

Is special equipment (boilers, air compressors, hoists, etc.) regularly inspected?

Is material handled, piled and stored in a safe manner?

Are hand tools kept in good condition?

Are any acids or corrosives handled? If so, are they handled and stored in a safe way?

If you use safety posters, are they changed regularly or are they allowed to become dirty?

Are exits clearly marked?

During this inspection you should watch for unsafe practices. These are some common ones that have probably taken place in every plant in the country:

Improper lifting.

Not wearing safety equipment.

Improper clothing, loose sleeves, rings and watches.

Improper use of hand tools and equipment.

Using defective tools.

Riding on trucks and dollies.

Cleaning and oiling machinery while it is running.

Throwing material and other objects.

Climbing over tote boxes, machinery, etc.

Running in aisles and on stairways.

Operating machinery without proper authority.

Making safety devices inoperative.

Distracting attention, teasing, abusing and horseplay.

Working on electrical equipment without locking out main switch.

Providing own first aid such as bandaids, etc.

purpose of this committee is to detect and report unsafe conditions that could cause an injury. This committee does much to bring your employees into your safety program and acquaint them with the safety problems.

If your plant is small, one committee perhaps can inspect the whole plant. If it's large, perhaps you will have committees for specific areas in the plant. You may find it better to have employees inspect some other than their own department since they are so familiar with their own problems they could easily overlook some serious hazard.

Since you want to get as many into this safety inspection as possible, it is suggested that you rotate the committee members occasionally, perhaps every three months.

The way you explain the purpose of the committee and plan your inspections will determine whether or not you accomplish your goal or fail to reach it. The employees on this committee should take their assignment seriously and not consider it a chance to get out of work or a chance to snoop into some other employee's business.

Items found during the inspection should be discussed with your committee. Also, it is a "must" that committee members be informed of unsatisfactory conditions corrected.

Machine Inspection Committees: Another type committee is one to inspect and approve all new machines and equipment before they are turned over for production use. Logical members would be the foreman, the engineer who designed the machine, the tool room man who is familiar with the machine, and the safety director.

Every Employee: Every employee should be instructed that it is his responsibility to report unsafe conditions.

After you have completed your inspection and have a list of conditions to correct, use very careful judgment in demandng their immediate correction. If you really have a serious condition, see that every effort is put forth to correct it immediately. But don't put every item you find in this category. First things first!

From an address presented at the 46th National Safety Congress. Picture by courtesy of Western Electric Co.

Operator seeking service engineer not at regular post, sets encoder to broadcast his signal. Buzzing sound alerts him.

PAGING SYSTEMS FOR SAFETY

by **MAURICE M. CLANCY**
General Supervisor of Safety
Insurance and Medical Service
Ryan Aeronautical Company

An intra-plant, selective radio paging system has become a major factor in continuing one of the most remarkable safety records ever compiled by a large industrial concern.

The seven-ounce receiver, slightly bigger than cigarette pack, carries easily in a pocket, or clipped to belt as shown here.

For over a year, the Ryan Aeronautical Company in San Diego, California, did not have a time loss injury. On May 13, 1960, Ryan safety engineers posted the number "548" in the outdoor cafeteria to denote that many consecutive days without an injury resulting in time lost from work.

Eleven years ago Ryan began a program with a stringent emphasis on safety which has resulted in a tangible saving of over $600,000. **When the intangible savings are added,** such as increased retirement trust benefits, time saved, production scheduling, etc., **the over-all savings approximate $1,500,000.**

All this, of course, could not have been possible without the close liaison that exists between supervisory and hourly employees in promoting safe working practices at Ryan. It has been partially due to the effectiveness of the paging system (a short-wave transmitting and receiving system developed by Stromberg-Carlson) that Ryan has been able to maintain this close coordination. This system has proved itself invaluable by providing a dependable, swift line of communication. Whenever a line of communication is disrupted, both time and control are lost. This communication link is necessary in any effective safety program, as well as in many production situations.

At Ryan the radio system is the successful link providing this line

System can send out four signals at once, repeat every 20 seconds. Where noise is great, a light alerts wearer.

of communications throughout 48 acres of factory, engineering, and administrative buildings. As an example, at Ryan the mighty jet engines for the Douglas DC-8 Jetliners are suspended from stationary steel I-beam gantries in the assembly building where systems, control, accessories, access doors, and nose cowl are installed. An engineer, installing some of the controls, may find himself working on an area of the engine where more than normal illumination is required.

This engineer knows that a phone call to the central switchboard will get the required lighting to the area within minutes. Rather than chasing an electrician all over the plant by phone, messenger, or bell signal, the operator simply dials the frequency assigned to his particular receiver, flicks a switch, and a short-wave is automatically transmitted throughout the plant.

This signal is picked up by the electrician's receiver which he carries on his belt or in his shirt pocket, and by his receiver alone. No other will respond to his signal. If he happens to be in an extremely noisy area such as a foundry, where an audible signal is difficult to hear, a flashing light on the receiver alerts him that he is being paged. He then calls the central switchboard and the message is relayed to him.

Correcting Hazards

Another situation where the communication system is valuable can arise when new products are being put into production. Having set up a jig to turn out a specific piece, the operator sometimes finds there are hazards in its production which must be remedied before it can be considered a safe operation. This means that safety engineers and other related personnel should be brought together to observe and rectify the situation.

Here again, the system is invaluable. Rather than close down the full operation while the operator frantically searches the entire plant by phone for the necessary personnel, a selective "beep" searches them out for her. As many as four employees can be contacted simultaneously. When they call in regarding the message, she has them gathering on the spot within minutes.

Occasionally accidents do occur. But when they do, a safety engineer is on the spot in moments, checking to see what caused the accident and how it can be prevented in the future.

Such immediate checking into an accident results in less delay in production and a more complete analysis of its cause.

Other safety equipment and practices which helped produce a National Safety Award record of 18,104,467 accident-free man hours worked include a program of shutting down the entire factory for 15 minutes once a month to permit all production departments to conduct shop safety committee meetings. Here the workers exchange ideas on hazards and offer suggestions on how to overcome them. These proposals are then submitted to the plant safety department for immediate implementation.

Safety Equipment

In addition, an Accident Review Board meets monthly to hear reports from shop superintendents on areas where mishaps, however minor, occur. The superintendents are required to submit written explanation of steps taken to prevent a recurrence.

One of the most successful programs at Ryan is the requirement that all employees and all visitors in factory areas throughout the plant wear safety glasses. This mandatory regulation has saved the eyes of several employees in accidents where slivers of metal have hurtled from parts being processed.

Also required is the wearing of metal-tipped safety shoes in certain factory areas, which has saved many toes from being crushed beneath the weight of heavy, sharp objects.

Although the present 120 "Pagemaster" receivers are providing adequate communication throughout the plant, plans are now being considered to add more to the system. In the future, Ryan will have to depend more and more on communication in order to maintain its safety record. With the tight time limits demanded by government projects, speed is necessary. But speed often is a strong factor in increasing accidents.

This means that the entire safety program will have to be even more carefully supervised, and that communication between the many areas and the 7,000 employees must be fast and dependable.

Photos courtesy Stromberg-Carlson.

Highway Safety Grants

The Directors of the Automobile Manufacturers Association have approved grants totaling $1,706,000 for the coming fiscal year to promote traffic safety and efficient use of highways, President L. L. Colbert announced recently.

Such grants have been made annually by the motor vehicle manufacturers for more than two decades, supplementing the industry's multi-million dollar safety research and engineering activities. This will be the seventh consecutive year in which the grant total has exceeded one million dollars, the third time is has topped $1.5 million.

"The many safety activities supported by our industry have proved through the years to be effective and well-balanced," Mr. Colbert said. "They have played a major role in improving the safety and value of the nation's highway transportation system. They will continue to grow in importance as traffic volume and complexity increase in the years ahead."

The largest AMA grant—nearly one million dollars—will be made to the Automotive Safety Foundation, a national organization providing financial aid and technical assistance for highway safety activities throughout the country.

Supported by industry since its inception, the Foundation has received more than half its funds from motor vehicle manufacturers. During the 23 years of ASF activity, the national traffic fatality rate has declined from 15.2 deaths per 100 million miles of travel to a low of 5.4 in 1959.

Safety Outlined For New Plant

When United States Gypsum Company puts its new plant at Sperry in operation, it will also put into operation one of the strongest, most effective safety programs in the industry. The company has been active in the National Safety Council since its inception in 1914, and in 1959 established the best safety record in its history. Of 59 plants, 34 enjoyed perfect safety records, accidents were reduced 30 percent, and the year was completely fatality-free, although personnel worked 25,000,000 man-hours.

"While we're proud of our record, that isn't what is important," states Hugh O. Jones, Jr., Work Manager of the Sperry plant. "The record is only a result of coordinated efforts to create safe working conditions, to require safe working practices, and to develop safe attitudes among our personnel."

Responsibility for each plant's safety rests in the hands of its manager. Jones puts safety of employees first in plant operation. Among the steps that will be taken to create the safest possible working conditions for the plant's 130-odd employees are:

Thorough indoctrination of new men on safety.

Periodic safety meetings.

Frequent interviews with employees.

Solicitation of employees' suggestions.

Use of proven safety educational and promotional material.

A 24-hour-a-day housekeeping program.

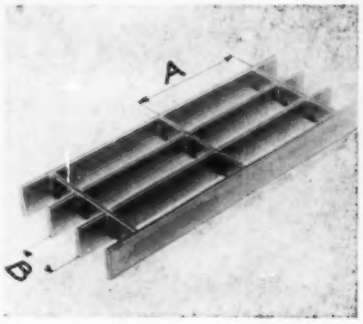
Regular safety inspections of all buildings, machinery, equipment and tools.

Immediate corrective action whenever a hazard develops.

Use of a fair disciplinary program.

"Safety," Jones concluded, "is everyone's responsibility. Most accidents result from human failure. To minimize this, we will screen job applicants carefully not only for ability but for suitability. We intend to do our part in maintaining company safety standards."

In this illustration "A" indicates cross bars while "B" points out bearing bars.



Illustrated here is entrance mat of close mesh grating of serrated surface.

Which of the 147 Grating Sizes Is for You?

Many Factors Determine the Size of Grating Meshes

In preparing specifications for metal grating, one of the the most important considerations is the use to which the grating is to be put. The purpose determines the size of mesh required.

During the last half century there have been developed many new uses for grating—necessitating the design of an increasing number of mesh sizes for a great variety of purposes, reports the Irving Subway Grating Co., Inc.

Mesh Size Reduced

For a great many years, no one expected a grating manufacturer to make gratings with bearing bars spaced closer than ¾" face to face. Then there came a time when ½" f.f. openings were required. Today it is not uncommon to receive specifications calling for grating ¼" f.f. of bearing bars. The latter mesh, you may have guessed, is specified in an attempt to provide a mesh suitable for women to walk on in shoes of the latest fashion with slender heels.

On the other hand, there are many specifications calling for much larger meshes. Recently a large power company ordered a 6" square mesh for their plant located on a river edge. This mesh was to be used as a screen at the mouth of a duct through which the river water was pumped for use in the plant's processes. The object of the mesh was to prevent logs and other large debris from entering the duct from the river.

Many Other Sizes

And of course there are many sizes in between, such as those used for sizing screens in mines and quarries, as well as the innumerable other uses in industrial plants for various purposes.

As a result of so many and varied requests through the years, 147 different meshes with bearing bar spaces ranging from ¼" f.f. and up, and with cross bars spaced from ⅞" f.f. and up are available today. This may seem like a lot of designs, but in the future new uses or conditions will undoubtedly call for sizes and designs not yet conceived.

Pictures by courtesy of Irving Subway Grating Co.

by **JOHN G. WOOD**
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Tracerlab, Inc.
Waltham, Mass.

Radioactive Problems of Industry

What safety problems will you face in using radioisotopes?
What equipment will you need to monitor the operation?
How can you set up a radiation safety program?
How can you handle a radiation accident?

The use of radioactivity in industrial plants is increasing at a steady rate. Various reports issued by the AEC indicate industrial savings to date in the order of hundreds of millions of dollars. Management, in some cases pressured into it by their competition, is looking at these figures and wondering what use to make of this new tool.

Industry's attitude toward isotopes has changed greatly in the last few years despite the fact that many people, when they think of radioactivity, hear a loud explosion and see a huge mushroom-like cloud coming out of the horizon. Great progress has been made in allaying the fears of those wanting to use this new tool but there are still many obstacles which have to be overcome.

The plant safety man who in the past may have been concerned only with high voltages, combustible solvents, toxic chemicals, etc., now finds that he must have a new set of answers for the AEC, the Department of Labor and Industries, the Public Health Department, the fire department, the police department, insurance company and various transportation agencies. This hasn't hindered progress; on the contrary, in some ways it has helped to promote a greater understanding of the hazards involved in the use of radioisotopes.

Many people find it reassuring to know that so many different groups are concerned with their problems; and each in its own way, because of its own particular experience can make its contributions and recommendations to their program. Never in the technical history of mankind has such a tremendous body of knowledge regarding safety techinques been developed in such a short period of time. A look at the safety record of the industry will show that you can count the number of serious accidents on the fingers of one hand. When we think of the unhappy fate that befell many of the early experimenters who did not realize the dangers in working with this new phenomenon, it is apparent that we have come a long way since the discovery of x-ray some sixty years ago.

Fig. 1. Appearing at left is new type of two-film badge which shows both one-week and 13-week dose accumulations.

Types of Radiation

There are generally three types of radioactive materials available—alpha, beta and gamma. Each by virtue of its own physical characteristics is useful in its own particular way. **Alpha** rays are very large particles, comparatively speaking, and are very highly ionizing. This particular characteristic makes alpha particle radiation very useful in deionizing air, i.e., to remove static charges in unwanted areas.

Beta emitting isotopes might be used for a variety of purposes. In many cases they might do the same

Fig. 3. Above is radiation emergency kit containing equipment for surveying and decontaminating emergency areas.

job as alpha materials but they are much easier to measure and are not generally as hazardous. While alpha ray materials are not very penetrating, beta rays are moderately capable of passing through only thin materials. **Gamma** rays, also are measured very easily, are extremely penetrating and are most useful industrially for that very reason.

Radioactive Tracers

Special emphasis must be placed on the use of radioactive tracers. In many industrial plants the first instance of radioisotope use is in the case of a particular tracer study—an evaluation—which in many instances leads to the use of the radioactive tracer as an aid in production and quality control. Usually by the use of very simple experiments and inexpensive equipment, industry has been able to increase its knowledge of chemical and physical processes resulting in better products and more efficient production.

The two important characteristics of radioactive tracers are:

1. They exhibit the same chemical and physical behavior as their nonradiochemical counterpart, and are available in the form of a liquid, solid or gas. They, therefore, can be added to a system without disrupting the chemical or physical balance.

2. They are easily detectable through layers of solid materials and therefore their presence can be determined without actually being seen.

Fig. 2. Typical ionization chamber survey meter for making spot checks, especially where radioactive isotopes are employed.

The tracer technique is one in which radioactivity is introduced into a system, courses through it, and finally gets detected at some critical moment or period; generally, because of the extreme sensitivity of our detection instruments, extremely small quantities are required. The amount of radioactivity in a luminous dial watch is sufficient in many cases.

In order to procure radioisotopes in excess of the typical quantities listed in Table 1, the intended user must first obtain a license from the AEC. The form which must be used is entitled "AEC 313" and requests the answers to several questions which will indicate to the license reviewer the amount of experience and training of the user, the safety equipment available, and adequacy of the proposed safety program.

When this license is approved a

(Continued on page 56)

HOW TO SET

by **ALBERT J. BURNER**
Supervisor of Cleaning Standards
The Port of New York Authority

Industry's objective in an organized sanitation program is to provide for its employees, and other persons using its facilities, services, or products, a clean, orderly, and healthy environment. Maintenance of the work environment can be effective only if control is even and continuous. This can be achieved if management has attained:

a. A technically qualified system of establishing standard sanitation methods, supplemented by a knowledgeable procedure for approving materials and equipment. These considerations are interdependent and one cannot exist for long without the other.

b. Equitable and efficient allocation of the workload, based on the time required for the performance of sanitation tasks, and formalized to an extent where it can be sold to the workers, and examined and re-examined by management when necessary.

c. Supervision, numerically and qualitatively adequate to the demands of training and "follow-up."

d. A tangible system for evaluating work performance, establishing appearance standards, and measuring current appearance levels.

The institution and administration of the above controls presupposes that management has provided adequate skill at the standard-setting and administrative level. Because the detail involved in organizing these controls, the technical knowledge necessary, and the resourcefulness required in a field where precedent often does not exist, management cannot haphazardly delegate the development, institution, and administration of these devices to untrained, unspecialized, and thus disinterested personnel. The catalyst which makes the whole program work is the interest and knowledge at the standard-setting and administrative level.

Where Does Sanitation Belong?

How can management relieve production and mechanical maintenance of tasks and responsibilities which are outside their areas of competence? Such conditions exist only where there has been an inadequate delineation of work, or where, perhaps, the cleaning function has been subordinated to an extent where it has received but very little attention. In any sizable organization there should be a division of responsibility which establishes the **cleaning** function as a distinct operation, separate from mechanical maintenance and production, and having its own budgeting, cost reporting, and cost accountability. There are situations where cleaning work, say the interior cleaning of cooking vessel, or fermentation chamber, are an integral part of the production operation. In such instances management *can* have the function performed by production labor. However, if this is done the operation should be defined as a *production* operation, supervised as such, and its cost charged to production. Should management find it expedient to clean these vessels with lower paid sanitation labor, the task becomes a *sanitation* job, directed by sanitation supervision, and chargeable to the sanitation account. Management can allocate the work as expediency dictates but the responsibility, accountability, and workload must be defined in a clear-cut delineation.

Methods, Materials, Equipment

How can management secure efficiency through selection and use

UP A SANITATION PROGRAM

of proper methods, materials, and equipment? Management, as a whole, is probably not aware of the progress which has been made in standardizing cleaning methods. The methods which are necessary for the maintenance of structural surfaces—floors, walls, windows, ceilings, and their appurtenances—have all been studied thoroughly by various industrial, governmental, and consulting groups, and have been published extensively in the trade press. This is true also of those broader procedures covering the cleaning maintenance of areas common to all industrial, commercial, and institutional buildings —office areas, lavatories, lockers & shower rooms, cafeterias, lobbies & corridors, etc. This much needed information has been publicized in specialized and restricted treatises, and has not, unfortunately, been brought together in one related treatment, or textbook, which can serve the needs of formalized training. This, we have been doing at the Port Authority for a number of years. They are definitive in nature, and are accompanied, in each instance, by time standards which can serve as a guide in the allocation of manpower. As far as cleaning maintenance is concerned, industrial plants vary principally in the specialized equipment which is necessary for their individual operations. It is in this aspect of plant cleaning perhaps that a certain amount of confusion should be dispelled. The writer has been confronted many times by the outraged general maintenance superintendent who protests vehemently of the complications resulting from mechanical and production mischance, mechanical and production priorities, etc., and their effect on cleaning methods and labor allocation in the organized housekeeping program. In all too many instances, these maintenance people seem to believe that an organized method, and labor allocation, for equipment cleaning is unpractical in their situations. However, the writer's experience has exposed him to the cleaning of conveying equipment, milling machinery, cookers, vats, heat exchange devices of all kinds, materials handling set-ups, bottling line and packaging systems, etc., many of which were operated on a twenty-four hour a day basis, and subjected to all of the normal interruptions that stem from mechanical failure, production emergencies, and spillages. This exposure has not convinced me of the hopelessness of the matter, but rather, it has convinced me that with study, application, and perseverance, the cleaning of processing and manufacturing equipment can be standardized for the individual plant, suitably scheduled in a flexible manner, and labor allocated. Standardized methods will not long remain standard unless the specification and approval of materials and equipment used in the operations is vested in the person who sets the methods. The structural and equipment surfaces present in the industrial plant cover a wide variety of chemically and physically different materials—painted surfaces, concrete, finished stone, ceramic tile, polished metal, plastic, rubber, asbestos composition, etc., and the chemicals individually suitable for their cleaning run the whole gamut of inorganic and organic make-up. Therefore their specification, and approval for purchase, must be handled by someone having both a cleaning and chemical background, and whose job responsibilities include an awareness of new developments in the field. This cannot be overemphasized.

Among large industrial, institutional, and governmental organizations, there is almost unanimous agreement as to the proper ap-

Here's how management can—

1. **Deal effectively with the cleaning of the work environment.**
2. **Relieve production and mechanical maintenance of tasks and responsibilities for which they are not fitted.**
3. **Make cleaning efficient through the selection and use of proper methods, materials and equipment.**
4. **Plan systematic sanitation and gear it to plant needs.**
5. **Train and supervise maintenance labor.**
6. **Evaluate the results of the sanitation function.**
7. **Control costs through records of labor and material.**

proach to material and equipment control as it affects sanitation operations. These organizations rely on at least three procedures in the approval process. These are:

1. The use of written laboratory specifications for preliminary protective and screening purposes exclusively.

2. An emphasis on field, or performance, tests to determine the effectiveness of material and equipment.

3. Reference research for the evaluation of new products.

The system in effect at the Port Authority at the current time embraces all of these procedures. The Supervisor of Cleaning Standards is charged with the responsibility of approving and specifying materials and equipment, and discharges this responsibility through issuing a monthly Approved Products List to the Purchasing Department and interested line personnel. Approval of a product depends upon meeting preliminary requirements in a written specification, the successful completion of a performance test, or in a few unusual cases, solely on reference research.

Method standardization and material and equipment approval, it should be reemphasized, are both inseparable and indispensable if control over the sanitation program is to be achieved.

Systematic Maintenance Planning

How can management plan systematic maintenance and gear it to plant needs? Systematic maintenance, geared to plant needs, in its simplest terms, means that the workload is divided equitably and efficiently among the workers and, that the order of its performance, and its frequency have been prescribed. This is accomplished in the *Written Work Routine.*

Equitable and efficient division of the workload requires the employment of standard times based on standard methods. This has been accomplished in a number of ways, and a great deal of unnecessary confusion exists as to the proper approach. One widely publicized system uses unit-times for all pieces of equipment, the inventorying of all similiar equipment, and multiplication of the unit-times by the number of items in the inventory in each instance. Such a system is cumbersome, bulky and detailed in paper work, and, because it is not based on the way the work is preformed, it is very difficult to *sell* to the workers.

A second system, which establishes **flow times,** based on the continuity in which an operation is actually performed, is preferable. For instance, the times for dusting one desk, one chair, one file cabinet, one piece of plant equipment, are *not* determined; but rather, a flow time, expressed in terms of minutes per thousand square feet of office space, or plant space, is determined for the single operation of dusting all equipment. Other standards are similarly established for the remaining operations in the routine daily maintenance of the area involved. In an office cleaning situation this would include the ash tray and waste basket emptying, and the dust mopping or treated sweeping of resilient floors. Such a set of standards can then be combined, as shown in Table 1, to represent the entire daily cleaning routine.

Such a standard is used by the Port Authority in dividing the workload of routine office cleaning in the 300,000 square feet of office space in their building. Similar systems have been worked out for the allocation of cleaning work in lavatory areas, terminal areas, certain types of food processing plants, and even classroom cleaning in school organizations.

The standards are based on written work routines which not only define the work to be covered in a workday, but also, the order in which the work is to be performed, and in the case of periodic work, the frequency. Daily work routines in industrial and institutional cleaning programs, more often than not, exist in an unwritten, unformalized state. But they should be formalized and as specific as possible.

Sanitation Training

How can management train and supervise cleaning maintenance labor? The primary responsibilities of sanitation supervision are twofold: first, to train the worker in the standard methods; and secondly, to follow up and see that the workload, as allocated, has been met. This concept of supervision presumes that management has provided the supervisor with a program that is made up of engineered work routines based on standard methods and labor allocation. Divorced of standard-setting and program-making responsibilities, supervision, if it is numerically and qualitatively adequate, can discharge its primary responsibilities of training and follow up.

It should be noted here, however, that sanitation supervision cannot be expected to perform as well as other supervision unless it is paid salaries commensurate with the payroll involved. When these conditions have been met, the supervision of sanitation will not be any more difficult than the placement and handling of other supervisory personnel.

In training the worker in the standard method, the operator should "learn by doing" under the on-the-job direction of the sanitation supervisor. An experienced, well-coordinated employee should demonstrate to the new worker the easiest and most efficient ways in which to perform a particular operation. The trainee is then directed to perform the work under the direction of the supervisor, who explains the purposes of the tools and materials involved and offers constructive criticism concerning

TABLE 1: Flow Time for Office Cleaning

Operation	Minutes Per 1000 Sq. Ft.
Ash Tray—Waste Baskets	5
Dusting of Office Equipment	15
Dust Mopping, or Treated Sweeping of Floors	12
Allocation of Time at End of Shift for Periodic Jobs	5
Combined Time for Routine Office Maintenance	37

the movements of the trainee. Essentially, the procedure is the same as that employed in the instruction of a trainee in any operation where manual dexerity is a factor.

There is, under certain circumstances, justification for formalized group instruction. An example would be the introduction of a new set of tools and materials, or a change in method. Explanation and training, in such instances, can be expedited on a group basis preliminary to the more thorough, individualized instruction by the supervisor.

The "Pet Peeves" of the supervisor, relative to the wrong-doings of his staff, can also be discreetly brought to general attention in brief group meetings at the beginning of the work-shift. Another method of correction or reminding is the posting of cartoons or bulletins descriptive of the "don'ts" of sanitation.

Examinations, conducted with a view to filling supervisory vacancies, can be a very effective tool in the instruction of the cleaning staff. The dates for such examination, at the Port Authority, are posted on the employee bulletin boards, staff members are invited to participate, illustrated manuals are made available to the applicants for study, and every help is extended by the supervisory and administrative staff in preparing those who apply for the examination.

Until recently, the cost of making films for employee training, in even the larger organizations., has been prohibitive. However, the costs involved have been reduced considerably in recent years and there is little doubt that company-made moving pictures depicting standard methods will be one of the most effective training tools of the future. There is little likelihood, however, that even this development can match the effectiveness of personal trial and error in on-the-job instruction.

These are but a few of the ways in which the sanitation supervisor can discharge his training responsibilities. Of equal importance is the degree of the insistence and persistence with which he pursues the "follow-up" activities of his job. Results here, as with all types of

(Continued on the next page)

Safety Maintenance SALUTES

A SAFETY IDEA

Self-Storing Air Hose

A coiled nylon air hose that stretches and recoils like a telephone cord, has won safety acclaim from Northrup Aircraft, Inc. The photo shows an operation on a Boeing wing sub-assembly using a coiled hose with an air hammer. Northrup claims that the self-coiling hose "saves time . . . aids housekeeping" in a complex area where pneumatic tools are used. It also finds that this "light weight, compact product can be connected to air lines with quick-disconnect fittings and carried from job to job when desired."

The coiled hose's self-storing ability is accomplished with the use of lightweight, oil resistant nylon, which is processed to continually return to its compact, coiled shape. The hose thus eliminates the hazards and inconveniences caused by regular straight air hoses lying on the floor. In its retracted position, it coils to only a few inches —is always out of the way and does not require expensive recoil mechanisms.

Picture by courtesy of The Nycoil Co.

Another Injury Checked

Safety Glasses Saved Eye

Joseph Breeze of the Greensburg, Pennsylvannia Division of I-T-E Circuit Breaker Co., is demonstrating how safety glasses prevented injury to his right eye.

While Mr. Breeze was nailing a lid on a wooden keg used for shipping bolts, a nail flew directly into the right lens of his goggles and shattered the protective glass.

Breeze became the first member of the Wise Owl Club of the Greensburg Division of I-T-E. The Wise Owl Club is sponsored by the National Society for Prevention of Blindness.

Sanitation Program
(from page 23)

supervision, will depend to a great degree on the maturity, objectivity, and leadership qualities of the supervisor and his ability to meet the work-load through the intelligent utilization of his staff.

Sanitation Evaluation

Another vital element in a successful sanitation program is a tangible system of establishing sanitation appearance standards, measuring current sanitation appearance levels, and thus, evaluating sanitation work performance.

This has long been recognized as one of the most difficult problems in the sanitation field. It embraces a number of considerations, some tangible, some intangible, and requires more than cursory study for its full appreciation. Let's concentrate first on the most important part of the inspection problem—the appearance of structural and equipment surfaces.

The most practical unit for creating a standard against which current levels can be compared is **room,** (or **area**) **appearance.** Overall room, or area, appearance depends on the sum total appearance of all of the surfaces present—structural and equipment. Structural surfaces can be divided into five groups: **floors, walls, windows, ceilings,** and for convenience, **light fixtures.** Equipment surfaces can mean the lathes, grinding machines, drills, and presses in a machine shop; the fillers, labelers, and packers on a bottling line; the commodes, urinals, and wash basins in a lavatory; or, the desks, chairs, file cabinets, etc., in an office area.

The *appearance* of these surfaces, both structural and equipment, depends not only on *cleanliness*, but on *order*, and on *repair and finish* as well. We see then that there are **six** types of surfaces to be inspected, and that each type must be evaluated with **three** considerations in mind. This means that a fully qualified evaluation of room, or area, appearance depends not on an impulsive, horseback judgment, but on eighteen separate considerations.

Form Widely Adapted

On the basis of this reasoning, and realization, there was developed some fourteen years ago at the Industrial Sanitation Research Foundation in Louisville, Kentucky, an inspection form, which has since been adapted, in many variations, to the needs of many industrial and institutional organizations.

In our adaptation the form is used for rating only one area at a time. The six types of surfaces are listed vertically and, opposite to each, horizontally are three boxes for *cleanliness*, *order*, and *repair and finish*. Percentage weights are given to each of the eighteen considerations, and these total up to 100%, or **absolute** appearance. A scale **(excellent, good, fair, poor, and very poor)** appears in each box for rating purposes, each having a numerical scale, the purpose of which is to tie the rater down to the greatest degree of objectivity. On the rear of the form are definitions of excellent, good, fair, poor, and very poor, to guide the rater in his evaluations. Because my job, as Supervisor of Cleaning Standards, is concerned primarily with **cleanliness,** we at the Port Authority, have included, as a variation from the original form, a cleanliness score, or level, in addition to the appearance score, or level, which is provided for in the original form.

Standard levels can be arrived at in different ways depending on how high a level management wants to maintain, and how much it is willing to pay for that achievement. Standard levels can also be established for different types of areas. For instance, lavatories, cafeterias, and locker rooms, may be set as high as 90%, and shop areas and garages as low as desired. At the Port Authority, we have established the lowest degree of "good" (which arithmetically is 74%) as our standard cleanliness level. We then report area levels in three groups: 74% or above as "Standard or Above," 66% through 73% as "Slightly Sub-Standard," and 65% or below as "Definitely Sub-Standard."

Such evaluations, made by a trained rater, at the staff level, keep management appraised of our current situation and also, through the written comments on each form, serve as a practical "follow-up" tool for line supervision. Most important to me, it keeps me informed of what is *standard*, and what is *current status*, in the housekeeping picture.

This is the way management at the Port Authority exercises surveillance over the housekeeping function and the sanitation aspects of production and mechanical maintenance at its airport terminals, tunnel and bridge administration buildings, bus and freight terminals, and office structures in the metropolitan New York area. Variations of the form and system are used currently in such widely divergent types of work places as the operating, or mail-handling, floors of the U. S. Post Office Department, and relatively small grain-handling and processing firms in the Midwest. With variations, it can undoubtedly be effectively applied to many more difficult industrial operations.

Specialized Inspection

The sanitation aspects of raw material, or product, inspection, say in a food processing plant, is something else again. This is a specialized type of inspection, often involving bacteriological or entomological procedures, and informs management of the sanitary quality of its raw materials and finished products. Such inspections are set

"Say, Joe, doesn't poison ivy have 3 leaves with notches on the edges?"

up as a control over operating procedures and are an important part of the sanitarian's responsibility in such organizations.

Cost Control

How can management maintain records of use of labor and materials as the basis for cost control? In those organizations, where management has been able to achieve a clear-cut delineation of the sanitation workload, and where sanitation operations have been studied, and the results incorporated into work routine units, the legitimate charging of costs can be easily determined, and an accurate running account maintained.

In such systems, labor and material costs, budgeted on the basis of studied operations, are generally very accurate and permit a considerable degree of rigidity in control.

All factors in labor control—budgeting, cost reporting, and cost accountability—are based on predetermined standards, the unit of which is the work routine; and this unit is the basis for planning, for analyzing manhour expenditures, and for revision, when necessary.

Sanitation material and equipment costs, on the other hand, can generally be quite accurately forecast and controlled on the basis of precedent, usually last year's experience. Analysis of annual material and equipment costs at Port Authority facilities have shown a remarkable tendency to run very close to 5.0% of labor cost. The 5.0% figure is thus used for budgeting purposes in new installations where precedent has not been established.

The above may appear to be an over-simplification to some in the manufacturing field, where either the nature of your operations or the organization of sanitation in your plant complicate the forecasting, charging, and recording of these costs. In some situations, sanitation labor is, at times, charged to other functions such as warehousing or shipping, or labor from other departments is at times charged to sanitation. It is undoubtedly situations such as these that have led to the post-recording of sanitation labor as a means of cost control. The conditions under which these situations develop, however, are generally peculiar to the individual plant.

Suffice it to say, that in whatever type of recording system is established, there is no point in either inflating or under-reporting sanitation costs, to the benefit or disadvantage of any other operation; and certainly, the scheduling and performance of sanitation work should not be made impossible, or even subordinated, in such considerations.

From an address presented at the American Management Association Seminar on Organizing & Managing an Industrial Sanitation Program. Picture by courtesy of the American Soap & Glycerine Producers, Inc.

Baling Press Survey

A study of accidents in baling presses used by the iron and steel scrap industry has been started by the Subcommittee on Safety, Institute of Scrap Iron & Steel, William S. Story, assistant executive vice president of the Institute, has announced. Baling presses are huge hydraulic machines used to compress miscellaneous sheet steel, automobiles, and other light material into compact packages for steel mill use.

Purpose of the survey is to find causes of accidents involving the baling press in scrap yards and to determine how these may be alleviated. The baling press survey is the second in a series of surveys being conducted by the safety subcommittee on safety conditions in connection with scrap yard equip-

(Continued on page 28)

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey American Bar Ass'n, New Jersey Bar Ass'n, Chairman, Committee on Workmen's Compensation, New Jersey Bar Association National Federation Insurance Counsel Past Commander, American Legion, Post 10, ... Newark, N. J.

VIOLATION OF COMPANY RULE—Course of Employment—Arising Out of Employment

The employer was engaged in a business which required the extensive use of highly flammable materials. For that reason a strict and rigidly enforced rule against smoking in the building was in effect. Claimant went to a washroom in the building, lighted a cigarette and threw the match into a toilet bowl, the contents of which immediately burst into flames. The claimant got a pail of sand and threw it upon the flames, whereupon some of the flaming liquid splashed upon claimant, causing his injuries.

It was undisputed that discovery of a violation of the non-smoking rule would result in the immediate discharge of an offending employee. When the claimant, in pursuance of a personal act, unconnected with his employment, deliberately violated the rule of which he was aware, he went outside the scope of his employment. While the attempt to extinguish the flames may have furthered the employer's interest, it was a continued effort on claimant's part to prevent discovery of his violation of the rule. When the claimant left the scope of his employment and caused a dangerous situation, it would approach the ridiculous to say that an attempt to alleviate the results of his own folly returns him to his employment. The claimant's injuries did not arise out of and in the course of his employment and were not compensable. Affirmed.

Boggan vs. Abby Finishing Company; New York Supreme Court, Appellate Division, Third Judicial Dept., No. 2157, May 16th, 1960.

MOTOR VEHICLE ACCIDENT—Mental Condition—Death Benefits

A wife of a deceased employee was denied compensation. The cause of death was alleged to have been hastened due to a reactive depression resulting from a shock caused by an accident in which the employee struck two persons while driving a taxicab pursuant to his employment. The reviewing board adopted the opinion of a doctor that the death was caused by cirrhosis and rupture of an enlarged blood vessel of the esophagus and was not related to the accident. Although the opinion was based upon a hypothetical question of which the assumed facts were somewhat otherwise, this was not a fatal error. Affirmed.

Amaral's Case—Massachusetts Supreme Judicial Court, June 3, 1960.

INDUSTRIAL ACCIDENT—Aggravation of Pre-Existing Cancer—Causal Connection

The lower court had refused compensation to a widow who charged that her husband's death was due to an alleged accident or that this alleged accident accelerated and activated a pre-existing cancerous condition. While assisting in the lifting of a heavy tank, the husband complained of pain in the lower back region and requested a fellow employee to rub his back with a rubbing compound kept in the decedent's locker. After that day, he was unable to return to work. Thorough medical examination revealed a cancerous growth in the spinal column. Further investigation indicated that the cancer had spread to this site from the lung. There was voluminous testimony by medical experts, all of whom were certain that the final cause of death was the lung cancer and all but one of whom were cer-

tain that the occurrence had no connection with the death four months later. This preponderance of evidence was held to outweigh the opinion of the one physician who believed there was a possibility of causal connection between the occurrence and the death. The lower court's decision affirmed.

Margoner vs. American Marine Corp.; Louisiana Court of Appeals. Parish of Orleans. No. 21499. May 24, 1960.

TESTIMONY—Credibility

The Deputy Director erred in awarding the widow of the deceased death benefits because she failed to sustain her burden of proof that the deceased was in the employ of the defendent, an owner of an apartment building, at the time of his death. The deceased was a carpenter who often did repair work for the owner of the building and also occasionally for the individual tenants. When he fell from the window of the apartment of one of the tenants, also a defendant, the deceased might have been in the employ of either of the defendants depending on which version of the contradictory testimony was accepted as true. The testimony of petitioner's witnesses was accepted by the Deputy Director and an award granted against the owner of the building; the claim against the tenant was dismissed.

The Court stated that in a civil action tried by a judge without a jury it would not hesitate to reverse a decision when it was convinced that the issue of credibility had been erroneously decided. In the instant case, petitioner's burden of proof on the issue of employment was carried by the testimony of two witnesses both of whom had made contradictory statements regarding the time of the accident. The manager of the apartment building who might have hired the decedent with the apparent authority of the defendant-owner, and who was a close friend of the deceased, gave a signed statement to an insurance investigator two days after the accident that the deceased was doing an individual job for the tenant at the time of the accident. The tenant, who testified that the deceased was in the employ of owner at the time of his fall, had one-half hour after the accident given a police officer the statement that the deceased was fixing an air conditioner for him. The court held that the former statements made by these two witnesses to be the more credible under the circumstances because neither of the witnesses would unequivocally deny that he made the statement. Upon the finding that neither of the witnesses was credible, the court held that the claim failed because it was not proved that the decedent was in the employ of the building owner at the time of his death. Reversed.

Ryder vs. Riverside Gardens, Inc.; New Jersey Superior Court, Appellate Division, No. A-550-57. July 8th, 1959.

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(For details, use Key # W-7 on card on page 1)

Baling Press Survey

(from page 25)

ment. The first such survey resulted in a special safety report, the "Alligator Shear Hazard Survey."

Typical questions in the questionnaire include: "How are presses loaded?"; "Explain operation being performed when accident occurred"; "What was unsafe mechanical or physical condition?" The results of the questionnaire received from Institute yard dealer members will be compiled, analyzed, and a special safety report will be prepared and issued to Institute members.

The Institute, as the national association for the iron and steel scrap industry, has sharply stepped up its safety program in recent years. The Institute uses the services of a safety consultant, conducts a yearly safety contest, promotes a safety week, and regularly publishes safety material for its members.

A copy of the alligator shear report is free upon request to the Institute of Scrap Iron & Steel Inc., 1729 H Street, N. W., Washington 6, D. C.

Instrument Exhibit

An innovation in road exhibits, featuring the latest developments of six of the nation's leading instrument manufacturers, will be staged this fall at five key sites around metropolitan New York and Philadelphia.

This new concept in traveling technical shows, which will be officially known as the Electronic Instrument Manufactures' Exhibit, will offer for the first time under one roof, an unusual operational array of complementary laboratory and production-test instruments, with ranges of from *dc* to 220 Kmc.

The project will be under the sponsorship of FXR, Inc.; General Radio Company; Lambda Electronics Corp.; Panoramic Radio Products Co., Inc.; Sensitive Research Instrument Corp.; and Tektronix, Inc.

For the convenience of visitors, all displays will be arranged to insure maximum exposure of exhibited items. Booths will be manned by company-engineer specialists, providing an unique opportunity to obtain first-hand information on calibration and measurement problems in practically all areas of electronics.

The five touring-exhibit areas will be:

Long Island (Garden City)—Sagamore Room, Roosevelt Field Shopping Center; October 5–6.

Connecticut (Norwalk)—Treadway Inn; October 11.

New York (Poughkeepsie)—Nelson House; October 13.

Northern New Jersey (Cedar Grove)—The Meadowbrook; October 17.

Philadelphia-Moorestown, N. J.—Cherry Hill Inn; October 19–20.

Show hours for every date will be from 1:00 to 9:00 P. M.

Planned Color Increases Safety

A rainbow which points to plant safety, employee morale and increased efficiency, is what the imaginative use of color has proved to be for the Amana Refrigeration, Inc. plant in Amana, Iowa.

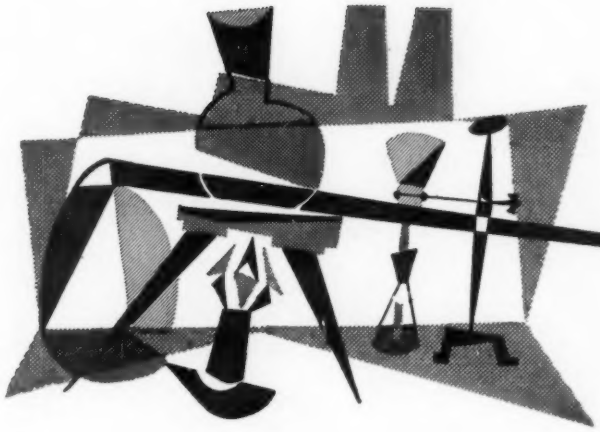
The company substituted an over-all color plan for its previous over-all cast of grey, brightening morale, improving efficiency, and cutting down on accidents throughout the plant.

Warning employees and visitors of potential hazards is a special shade of yellow, which appears also on all moving machinery parts. A slightly different shade of yellow alerts visitors and workers to safety signs and material-handling trucks, differentiated by the shading from stationary equipment.

The attention of visitors is drawn to test booths and other key production and inspection areas by the use of dramatic red, while inside pipelines form a harmonious color scheme with one another and machinery and walls.

Gloomy plant areas have been eliminated by the use of a color scheme, which graduates from deep red at one end of the plant, through beige, soft yellow, to blue at the other end. The cafeteria presents a restrained holiday air.

Aluminum paint has brightened up aluminum screens meant to catch anything that might drop from conveyor belts.



industrial hygiene

Exhaust Fume Control

The Air Pollution Control District of the County of Los Angeles presented to the Board of Supervisors a report disclosing results of research into a principle for controlling oxides of nitrogen in auto exhaust. The research indicates that oxides of nitrogen can be reduced 80 to 90 percent by introducing a small amount of cooled exhaust gas into the intake system of the engine.

This principle appears not to have been considered previously for this purpose. It was developed simultaneously and independently through research conducted by the APCD and by the UCLA Engineering Department. The results achieved in both of these independent investigations are termed remarkably consistent.

The discovery makes available for the first time a principle of control for all of the major contaminants in auto exhaust. The others, hydrocarbons and carbon monoxide, can be controlled by afterburners.

A functioning device incorporating this principle had been built by the UCLA Engineering group, and had been operated successfully on the road for five months. The UCLA device consists of a narrow tube to carry the exhaust gas forward from the tailpipe to the carburetor, and a valve to meter the flow. The valve is simple in design, and is operated mechanically by an extension of the throttle control. Estimated cost of such an arrangement is given as "less than $15."

Significance:

1. Oxides of nitrogen from motor vehicles, in conjunction with hydrocarbons, are the leading cause of Los Angeles smog. Elimination of oxides of nitrogen from motor vehicles, coupled with control of hydrocarbons, should end the Los Angeles smog problem.

2. Introduction of cooled exhaust into the intake system will reduce the tendency of the engine to "knock," thus improving the effective octane number of the fuel-air mixture. This would permit high-compression engines to operate on gasoline of lower octane rating, and consequently at lower cost.

3. This method of octane improvement may reduce the need for gasoline to contain special anti-knock compounds.

4. To the extent that this method reduces the demand for higher octane ratings in gasoline, it would be of assistance to gasoline refineries in their efforts to comply with the requirements of Rule 63.

5. This finding does NOT reduce the need for afterburners, or other devices, to control hydrocarbons and carbon monoxide.

Background:

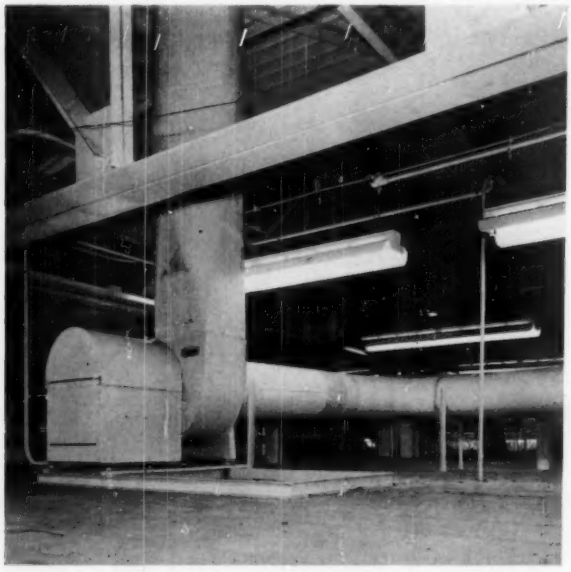
The recirculation of exhaust gas has been the subject of experimentation for years. Those experiments, however, were directed toward reducing knock, and not toward a means of limiting oxides of nitrogen.

During the past year independent investigations were undertaken by the Air Pollution Control District team of Wallace Linville and Yee Sing Yee, and by a team at UCLA consisting of Richard D. Kopa and Hiroshi Kimura. Their experiments produced similar results when the effect of exhaust recirculation was measured in terms of reduction of oxides of nitrogen. Both teams found that injections of 15 to 18 percent of the exhaust gas volume reduced oxides of nitrogen 80 to 90 percent. In this range, they found no uncorrectable loss of power, or increase of unburned hydrocarbons in the exhaust.

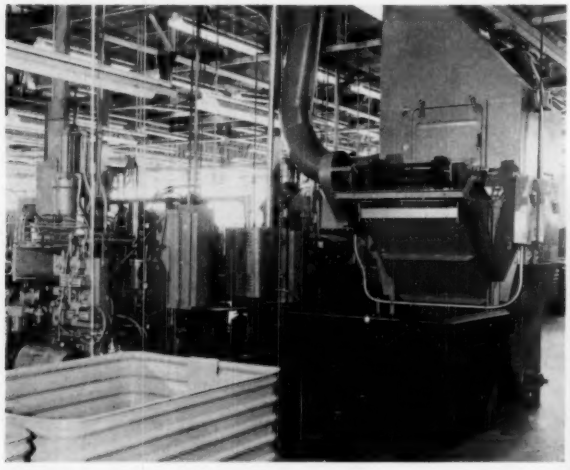
The theory behind this observation is not yet clear, although it is generally stated by Kopa that the exhaust gas dilutes the oxygen content of the air and thus lowers the flame temperature.

The UCLA device that incorporates this principle is installed upon a 1959 Ford. It has been operating on the road for five months, and is reported to be effective, durable, and trouble-free.

Better Air for Big Plant



ABOVE—Unit blower exhausts air from manufacturing area. Easily installed, completely "packaged" unit features a hinged drive-side cover and outboard sheave for easy-to-get-at servicing of belt and motor.



ABOVE—A wet type collector with automatic sludge ejector. This unit has been installed to control fumes from the arc-welding machine at left.

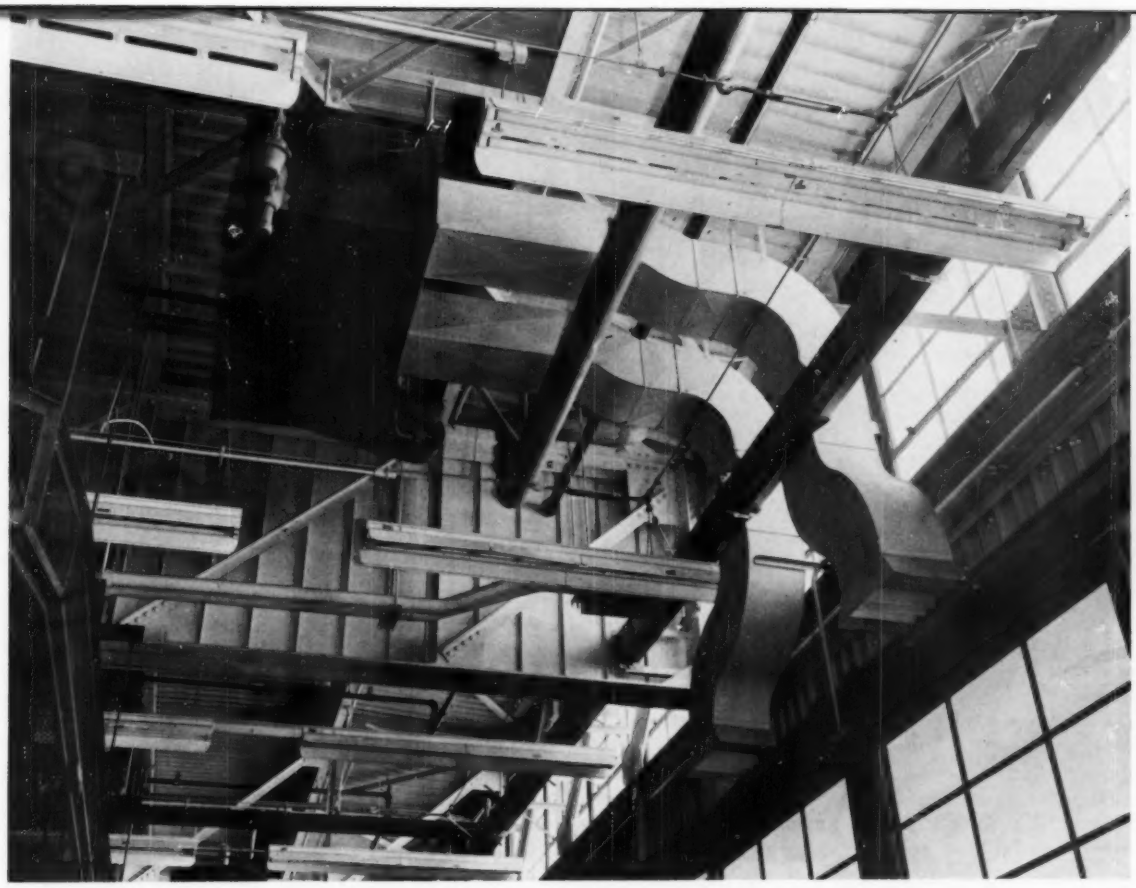
The huge Chrysler Transmission plant in Kokomo, Indiana, requires a wide assortment of dust control and ventilation equipment both for production needs and the maintenance of employee health. Included in the installations are air filters, dust collectors, heating and ventilating units, unit heaters, centrifugal fans, unit blowers, convectors, steam traps and valves.

Precision required in the manufacture of parts and the assembly of completed transmissions placed unusual demands on the ventilating system. Not only did the air brought into the plant have to be clean, but the dust collection system had to be engineered to handle a variety of different types of exhaust problems. In addition, heating and ventilating products and steam traps had to be of the same high caliber.

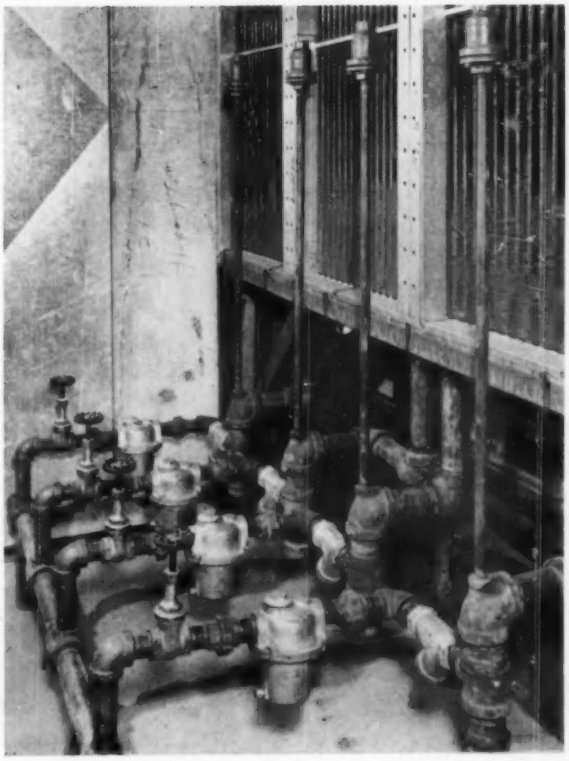
The accompanying photographs show some of the installations and equipment for better air at the plant.

Pictures by courtesy of American Air Filter Co.

LEFT—A view of the Chrysler plant tool room showing a dry centrifugal collector at the upper left. This unit is connected to each of the dust producing sources in the tool room by means of branch ducts. Chrysler also has a novel dry collection system when diamond grinding wheels are used, enabling recovery of valuable diamond dust.



ABOVE—Heating and ventilating units blanket the shipping department doorways. Suspended from the ceiling, they hang out of the way . . . provide quiet operation. The heat capacities of these units range as high as one million BTU's.



LEFT (Opposite)—One of the many multiple-duty filter systems which clean all outside air brought into the ventilating system. These automatic, oil bath type filters clean over 1 million cfm of air.

RIGHT—Four float and thermostatic traps are used to collect the condensate from the steam heating coils used in the plant's supply air system.

First Aid by the Industrial

How the nurse can be ready for emergencies in advance. What first aid steps the nurse should take

How should nurses prepare for emergencies in the industrial plant?

From the viewpoint of the individual nurse, the problems of a one-nurse or a multiple-nurse unit are essentially the same. If the doctor is on call or on the premises, the nurse must prepare for his attendance.

Upon assuming a new position, the industrial nurse should acquaint herself, as soon as possible, with the physical aspects of the plant. On your tour, determine not only the type of accidents that may occur but the accessability of the injured to the Medical Department.

Designate a place for the stretcher or stretchers; see that the aisles are wide enough to accommodate them or find out which aisles are. Who does, or will, maintain the stretchers? Are there trained cot crews to bring the injured to the nurses' station; will they recognize the need to call the nurse or the doctor to the scene?

Is this a factory with enough floors to warrant an elevator? If so, institute a signal system to be used for emergency purposes and see that the stretcher fits into the elevator.

If the doctor is not on the premises at all times, confer with the doctor on call as to his preference in medications and treatments of acute conditions so that you will have the necessary supplies in readiness.

Contact and negotiate with a nearby ambulance service so that there will be no waiting period for confirmation of responsibility at the time of need. Do the same for a car or cab service; and the local Fire Department. Discuss with the hospital of your attending doctor the possible admission needs. List all of these emergency services with addresses and phone numbers in a very conspicuous place. Include the phone numbers of the local parish priest and police.

Having arranged for all of these community facilities, enumerate the essential details and refer to your procedure outline when the first occasion arises. Until you have followed through on a repeated number, it is easy to omit one of the steps.

Another section of the Western Electric Company's Health unit at its Hawthorne plant, a spacious waiting room area.

Forms & Records

Make up a hospital admission form for entering all the vital statistics that are readily available from your Medical Department records and that will be required by the hospitals. Also, provide a space for "tentative" diagnosis and medications that have been given. You can understand how important this is for the seriously ill patient.

Prepare a form letter for hospital admission, also one for Company responsibility cases. Designate to whom the reports and bills will be sent. This leaves only the identification of the employee to add at that time.

Include in your procedure the notification of relatives. If it is at all possible, either by extension or plug in phone, try to allow the patient to speak to his family. No matter how you try to soften the shock, it is difficult for the family to accept the fact that you have sent a husband or a father to the hospital. Have a designated person or group to do the notifying in case you are unable to contact relatives by phone. This preliminary planning is helpful in expediting the care of the acutely ill employee.

Medical Facilities

Attempt to arrange the Medical Unit to accommodate a seriously ill patient in some degree of privacy and quiet; a room separated, if at all possible, from the normal activity. Have your side rails attached to the bed so that you will not have to leave the patient to get them.

Designate one cupboard, shelf or unit for emergency equipment. Establish a routine for checking this regu-

Nurse

by **ANNA J. THRASHER, R. N.**
Director of Nursing Service
Hawthorne Works
Western Electric Company
Chicago, Illinois

Shown in the photograph above is the well-equipped treatment area that figures prominently in Health Service Unit.

larly. When you and the doctor have decided on its contents, **list them;** do not rely on your memory. Include here such articles as:

Tourniquet
Stimulants
Syringes
Blood Pressure Cuff and Stethoscope
Poison tray
Airway
Narcotics (if permitted in your situation)
Orange juice
Glucose
Eye wash
Sterile dressings
Small suture tray

You might be duplicating equipment and supplies used elsewhere in your situation, but this is not wasted effort or supplies.

Test your oxygen tank and equipment at least once a week. Keep a log on the amount in the tank. If you maintain an ambulance on the premises include this in your weekly inventory. Inspect the tubing and masks for leaks at the same time.

Strap a padded tongue blade on the wall next to the bed or in a familiar spot where it can be easily reached.

With all of this in readiness you are prepared for your first emergency.

Emergency Measures

Now, the specific nursing measures that can be employed until the doctor arrives:

In acute absorption from toxic fumes:

Remove the employee from the work environment immediately; notify the doctor; administer oxygen; if extremely weak, give some form of sugar by mouth, e.g., Karo Syrup with dilute lemon juice.

In heat exhaustions:

Put the patient at complete bed rest. Give salt and sugar by mouth; if the patient can retain it, notify the doctor, and prepare the emergency tray for I. V. administration on order.

In cardiovascular accidents:

Start the oxygen if the patient is dyspneic and try to reassure him; attempt to keep interested onlookers away; check the blood pressure and pulse, consult the medical history, have something concrete to report to the doctor.

In acute G.I. upsets:

Where there is a food complaint or history of food contamination, induce vomiting using an emetic such as warm soda and water.

In acute gall bladders:

Give nothing by mouth; apply heat to the epigastric region and have your hypnotic ready.

Acute G.U. emergencies are usually kidney stones; here again we are limited to using local heat and having an hypnotic ready.

Antiphylactic shock:

If you are administering flu vaccine or other prophylactic serums, it will be under the direction of the doctor. At the time you set up the program determine specific allergies which would make the vaccine contraindicated; do not give it to those having these allergies. Also obtain the drug of the doctor's choice for injection, in case of sensitivity. Have ready, not only the vial of medication, but instruments for cut down in case of complete collapse. It would be well to keep these packs on the table where you are dispensing the vaccine.

Drug reactions:

List all known sensitivities in the medical history; flag the record in an obvious place; attempt to have the record available at the time of the treatment. If, as sometimes happens, the patient doesn't admit to an allergy until after administration of a drug, use an antihistamine immediately, even before any untoward reaction occurs. Here some serious health counseling is indicated.

Acute central nervous system emergencies:

In any loss of consciousness, your first concern is to protect the patient. If he is having a convulsion or seizure, use the padded tongue blade; loosen his clothing; pull up the side rails; if he responds verbally

Other articles October and November

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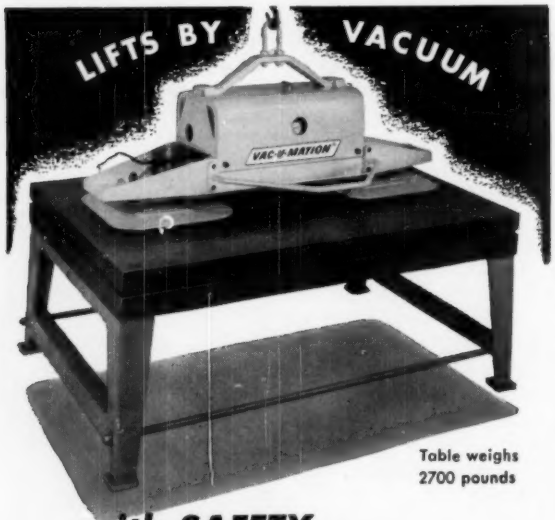

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reassure him; give him some mild sedation, e.g., phenobarbital, and let him rest. Do not allow him to return to work the same day. See that he is accompanied home, if not hospitalized. Advise him to consult his doctor before returning to work. This will re-emphasize the importance of adhering to his doctor's program of treatment.

Acutely disturbed employees:

Have an established policy in writing, for the handling of the acutely disturbed. Have assigned personnel to help restrain until the doctor has ordered indicated disposition.

Insulin shock:

If possible, give orange juice by mouth and prepare your I.V. glucose; here again clearly flagged medical records will help in detection. However, also encourage personal identification. In the rare diabetic coma, prepare the insulin and use the same precautions that you would for all loss of consciousness.

In severe chemical burns:

Wash with copious amounts of lukewarm water and apply a sterile dry dressing and firm bandage.

In thermal burns:

Apply a sterile dry dressing and firm bandage. Force fluids; treat for shock if indicated. Avoid debridement or ointments until patient is under the care of a doctor.

In serious mechanical eye injuries:

If the cornea is lacerated, or there is a penetrating wound, patch firmly and transport to the ophthalmologist.

In chemical burns of the eye:

As in chemical burns to the body flush with copious amounts of water or eye solution; even when you are tired of holding the lids apart and have used up one bottle of solution start on the second one. You cannot flush too much. Patch firmly and transport to the doctor.

Thermal burns of the eye:

They are almost always due to ultra-violet and the patient will not notice the symptoms for about 6 hours. By this time the cornea has begun to peel. Do not flush these. Patch firmly. Thermal burns of the eye are almost bilateral. To facilitate locomotion you might want to use dark glasses instead and send to ophthalmologist.

In acute low back strain:

If the employee has just dropped to the floor having incurred a severe acute back pain following lifting of a heavy object and you are called to the scene of the accident:

Try to move the patient without putting any more strain on the back muscles. If you transfer him to a cot, keep the knees flexed. If you are transferring the patient from the cot to a bed, support him on either side under the arms, thereby avoiding the use of the back muscles. When in bed again, elevate the knees.

In hemorrhage of wounds:

Apply pressure with compression dressing. If you are unable to control with this method apply tourniquet.

In severe bleeding from the nose:

Keep the patient in sitting position until active bleeding has stopped. Advise patient to breathe through mouth. Press both nostrils together for 5 to 6 minutes. If bleeding does not stop, pack a small amount of gauze back into the nostril, leaving end so that it can be removed.

For internal bleeding:

Complete bed rest. Do not sedate. Reassure the patient, give nothing by mouth.

In severe traumatic lacerations:

Apply a sterile protective dressing and a firm compression bandage until operating room facilities are available.

In fractures and amputations:

Our main concern is protection. Apply a sterile protective dressing, a firm bandage and immobilize by splinting. Avoid flat splinting. Attempt to splint in position of function. Bandage securely. Do not allow any motion of the injured area, thus avoiding additional damage to soft tissues.

Acute head injuries:

Apply a compression bandage to control bleeding. Do not remove any protruding foreign bodies. Watch closely and record such vital signs as bleeding from the ears or nose, consciousness on admission, loss of consciousness, period of unconsciousness, contraction of pupils, alteration in pulse, respirations, etc. Normally, keep the head elevated to prevent congestion. However, if the patient has trouble breathing, you can't maintain this. Do not sedate. This may mask the symptoms.

Non-Occupational Emergencies

Appendicitis:

History—Nothing by mouth; contact personal physician if your doctor has ordered hospitalization. Transportation to hospital.

Ruptured Ulcer:

History—Nothing by mouth. Treat as any shock patient. Do not sedate. Treat for shock.

Obstetrical:

Determine specific policy of management relative to length of time that pregnant employee may work. If there is no limitation on this you will have to be prepared for a delivery. In miscarriages, if employee has been brought to you on stretcher do not transfer to a bed for examination. If there is any vaginal bleeding do not attempt to remove any visible clots. Use perineal pads with pressure and strap legs together. Then do all you can to expedite her removal to the hospital of her choice.

As a final word it should be repeated that in all emergencies it is important to instill confidence in the employee, not only in the nurse's technical skill but more important possibly in her sincere interest in him as an individual.

From an address presented at the 46th National Safety Congress. Pictures by courtesy of Hawthorne Works, Western Electric Company.

Floors wearing out?

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(For details, use Key # W-10 on card on page 1)

YESTERDAY it wasn't there. Today, he picks it up and wonders: *why did it grow like that?* The miracle of growth! Whether it's a "toadstool" that springs up overnight or a cancer cell that suddenly comes into being, we've a lot to learn about the whole beautiful process of orderly growth . . . and the dreadful, senseless growth that is cancer.

The cancer puzzle is tied up in growth —growth of body cells smaller than the periods on this page.

Scientists, working under grants from the American Cancer Society, are ceaselessly studying cells—normal and cancer cells. And they too are asking: *Why?*

Why do cells suddenly change from normal growth to uncontrolled, disorderly growth? This question can be answered only by the most probing, painstaking and costly research.

Your contributions to the American Cancer Society will support hundreds of scientific studies necessary to save lives today and tomorrow.

Remember: Cancer can strike anyone. But you can strike back *hard* with your dollars. Send your gift to CANCER in care of your local post office.

AMERICAN CANCER SOCIETY

Radioisotopes Removed By Water Plants

Municipal water plants, though not designed for the purpose, can remove a substantial fraction of radioisotopes from water they process, studies at the Hanford atomic laboratories, Richland, Wash., indicate.

Robert L. Junkins, a senior General Electric engineer at Hanford, reported to the Nuclear Congress on a year's sampling of the Pasco municipal water system filter plant 39 miles below Hanford nuclear reactors. He explained that General Electric, which operates Hanford for the Atomic Energy Commission, conducts this sampling as part of an extensive environmental monitoring program in Hanford's vicinity to provide guidance in the control of plant operation practices and to assure that the release of atomic wastes in the area is well within recognized limits.

Hanford's reactors use some Columbia river water for cooling purposes. Effluent from the reactors when discharged into the river contains several radioisotopes generated during its quick pass through the reactors. Columbia river water at Pasco contains about 15 percent of the maximum concentration of radioisotopes permitted by national radiation health authorities. After treatment in the Pasco filter plant, he said, the 15 percent of the permissible concentration is reduced to about five, even though this plant was not designed and is not operated for this purpose.

He said the plant's efficiency in removal of radioisotopes varies with the seasonal demand for water. It is least efficient during summer months when the water plant is operating near capacity and there is less time for radioactive decay as the water passes through the treatment plant. However, this corresponds with the highest flow rate of the Columbia river when the effluent from the reactors is diluted most by increased water from the mountain snow melt.

Some of the radioisotopes are removed by sedimentation and filtration. The solid wastes from these sources are periodically removed by flushing. Because of radioactive decay, there is little accumulation of radioisotopes in these solids or elsewhere in the plant.

Conference on Environmental Problems In Construction

The 6th Industrial Hygiene and Air Pollution Conference on new environmental problems in the construction industry will be held at the University of Texas in Austin, Texas, on December 3rd. The conference is being sponsored by the Texas University College of Engineering; Enviromental Sanitation Services, The Texas State Department of Health; and the Gulf Coast and North Texas Sections, American Industrial Hygiene Association. For further information, write to: E. F. Gloyna, Professor of Civil Engineering, Engineering Laboratories Bldg., Room 305, University of Texas, Austin, Tex.

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Five 1000-Day Certificates of Achievement in Safety were awarded at the annual National Lime Association convention in Sea Island, Georgia. This represents a marked achievement for the lime industry, since only twenty 1000-day certificates have been awarded since the Thousand Day Club for the lime industry was started in May, 1937.

The awards winners were as follows:

1. Standard Lime and Cement Co., Div. of American-Marietta Co., Pleasant Gap, Pa. (record ended in March, 1960 at 1253 days)
2. Standard Lime's Knoxville, Tenn. plant, which reached 1000 days on May 3, 1960.
3. U. S. Gypsum Co., Genoa, Ohio, which passed 1000 days on April 5, 1960.
4. Marblehead Lime Co., Div. of Material Service Corp., Hannibal, Missouri. (record ended in February, 1960 at 1129 days)
5. Marblehead's Quincy, Illinois plant, which passed 1000 days on March 5, 1960.

The Thousand Day Safety Club is open to all lime plants enrolled in the annual lime plant safety competition sponsored by the National Lime Association and conducted by the U. S. Bureau of Mines, Washington 25, D. C. The award is based on disabling injuries which involve actual lost time or lost time charges.

• • •

Governor Robert Meyner of New Jersey presented Elliott G. Ewell, executive vice president-sales, Mack Trucks, Inc., with the National Safety Council's Public Interest Award, citing the company for exceptional service to highway safety. For the past four years, Mack Trucks, in cooperation with the American Trucking Association's Foundation, has sponsored a summer-long highway safety and trucking education series over NBC's Monitor weekend radio program. The series will be continued this summer for the fifth consecutive year.

The Public Interest Award marks the second successive year that Mack has been cited by the National Safety Council for its contribution to highway safety.

• • •

American Cyanamid Company's plant at Latrobe, Pennsylvania, has been cited by three different organizations for operating more than 16 years without a disabling accident. Plant personnel recently received the Award of Honor of the National Safety Council, a Certificate of Achievement from the Manufacturing Chemists' Association, and Cyanamid's own President's Safety Award.

• • •

Two safety awards have recently been presented by the Philadelphia Safety Council to the Military Clothing and Textile Supply Agency of the Philadelphia Quartermaster Depot, U. S. Army. The Council's Million-Man-hour Safety Award was presented to Colonel J. S. Kujawski, Assistant Depot Commander, in recognition of the 3,490,525 hours worked by Depot employees during 1959 without a disabling injury.

In a presentation to Mr. W. E. Stepp, Depot Safety Director, the Council's Commendable Accomplishment Award was given to employees for reducing the accident rate during 1959 by 41 percent under the previous year.

• • •

Allstate Insurance Companies have been honored as one of the few companies ever to win National Safety Council Public Interest awards in two distinct categories.

National Safety Council President Howard Pyle presented the two citations to President Judson B. Branch of Allstate for its exceptional service in safety in the communications field during 1959.

One award recognized Allstate for its traffic safety television advertising. The other award honored Allstate's 4,000,000 circulation policyholder publication for its traffic safety articles carried in each 1959 issue.

• • •

The Clarence Center, New York mine of Bestwall Gypsum Company, winner of the U. S. Bureau of Mines' 1959 national safety competition, nonmetallic division, received a Sentinels of Safety trophy and flag, symbolic of the achievement, at special ceremonies recently.

The Clarence Center Mine, part of Bestwall Gypsum Company's Akron, New York manufacturing operation, was cited for having worked 265,192 man-hours in 1959 without a disabling injury. The mine also had an accident-free record in 1959, in which year 213,004 man-hours were worked without a

disabling injury. The company's Grand Rapids, Michigan mine took the nonmetallic division award in 1958.

Roy G. Stott, Mining Health and Safety Engineer of Washington, D. C., and Thomas Curray, Sub-District Supervisor of Health and Safety of Albany, represented the U. S. Bureau of Mines, and distributed individual certificates of achievement to each miner.

Presentation of the bronze Sentinels of Safety trophy was made to John DiLorenzo, manager of the Akron, N. Y., plant.

The National safety competition is conducted annually by the U. S. Bureau of Mines. Enrollment is voluntary.

• • •

Three Certain-teed Products Corporation plants completed the year of 1959 without experiencing a disabling injury, it was announced by Matt F. Fink, Safety Supervisor. The East St. Louis, Illinois; Dallas, Texas; and Tacoma, Washington plants each received trophies from the Asphalt Roofing Industry Bureau and the National Safety Council, Pulp and Paper Section. In addition, the East St. Louis plant won the Corporation's Inter-Plant Safety Contest Trophy.

East St. Louis went 1,018 days or 1,277,584 man-hours without a disabling injury. Dallas went 586 days or 442,401 man-hours and Tacoma went 1,199 days or 355,827 man-hours.

• • •

The U. S. Army Armor Center at Fort Knox, Kentucky, has been presented with the National Safety Council's Award of Honor for outstanding safety performance for the fiscal year of 1959. The presentation was made to Major General W. Paul Johnson, commanding general of The Armor Center, by Major General Rinaldo Van Brunt, deputy commanding general of the Second U. S. Army. The Armor Center at Fort Knox, whose safety director is Lawrence E. Fisher, was the only Army installation in the Second Army to receive the award.

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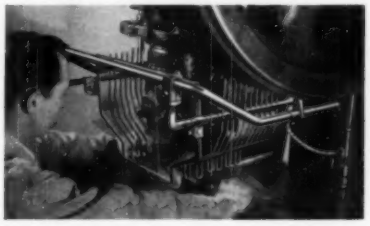

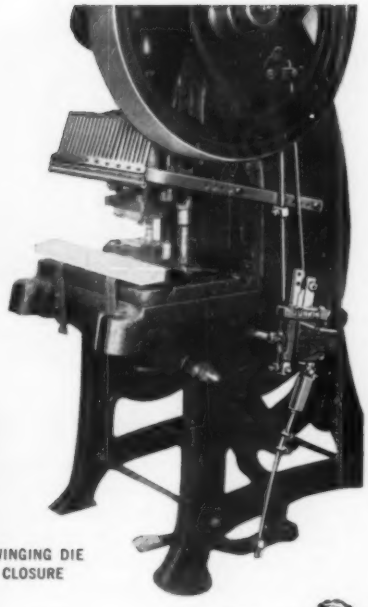

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(For details, use Key # W-13 on card on page 1)

Safety Sign Code

The design, application and use of signs or symbols to indicate specific industrial hazards are included in the American Standard Specifications for Industrial Accident Prevention Signs, Z35.1–1959, approved and published by the American Standards Association.

This standard is a revision of Z35.1–1941, and lays particular stress upon the need for uniformity, at all industrial levels, of accident prevention signs. Its provisions cover a wide range of safety signs excluding those designed for streets, highways, railroads, and marine regulations. A number of specific hazards are defined. This standard does not apply to plant bulletin boards or to safety posters.

The aim is to eliminate, where possible, the indiscriminate posting of haphazardly selected signs, and to install signs of certain designs for definite purposes. To achieve the goal of maximum industrial safety, reactions to signs should be automatic. When all concerns use signs of definite design and color to warn of particular hazards, to express caution, to provide general information, or to point out directions, the use of accident prevention signs will become more effective. The ultimate objective is to make workers familiar with the necessary sign designs, no matter where they may work. Uniformity of design and color is the key to this objective.

The standard covers five basic groups of safety signs; **danger signs, caution signs, safety instruction signs, directional signs,** and **informational signs.** Included in the section on danger signs is the newly approved American Standard Radiation Symbol.

Two appendixes have been included which are not part of the standard. However, it was felt that their inclusion would facilitate the use of the standard. The appendixes cover sign construction, materials and finishes; and sign locations and maintenance.

American Standard Industrial Accident Prevention Signs, Z35.1–1959, is available at $1.35 per copy from the American Standards Association, Dept. PR167, 10 East 40th Street, New York 16, N. Y.

Maintenance Techniques

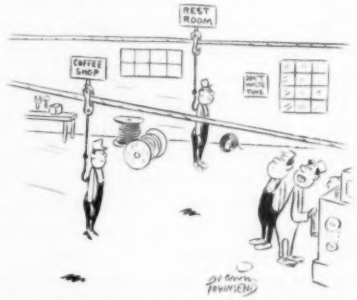
Publication of the 11th volume of the annual series, "Techniques of Plant Maintenance & Engineering –1960," has been announced in New York by Clapp & Poliak, Inc. The volume is a report of the Plant Maintenance & Engineering Conference held earlier in the year in Philadelphia. It is the largest volume in the 11-year series and contains 341 pages, 8½-by-11 inches—75 more pages than last year's—bound in cloth-on-board. Priced at $10 postpaid, the published work is available from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y., producer of the annual Plant Maintenance & Engineering Show and Conference.

A major resource and reference volume in its field, the book reflects the growing importance of maintenance and engineering functions in industry. It reveals the approach by industry to the key production problem of keeping plants and machinery running at optimum efficiency.

This issue of "Techniques of Plant Maintenance & Engineering –1960" reports on the advance of automation from research and experiment to reality, and on the significance of automation in maintenance operations.

In the book are reprinted the 34 papers presented at the 1960 conference, along with the text of all the discussions, all the comments, all the questions asked from the floor and the answers from speakers and panel members. The question-and-answer section this year is more than twice as extensive as any previous effort. Nearly 2,000 practical, everyday problems are discussed and analyzed, with corrective solutions suggested. There are 883 questions answered in the sessions where papers were presented and more than 1,000 in ten round-table discussions. Ninety-seven tables, charts, graphs and diagrams are reproduced.

Topics covered include: "How We Control Maintenance," "Controlling Maintenance Stores," "The Fundamentals of a Sound Apprenticeship Program," "Supervisory Training," "Maintaining Control Instruments," "How To Use the Industrial Engineering Techniques in Maintenance," "Improvements



"It's the Boss's idea to conserve the workers' energy."

Acheived in Industrial Engineering Techniques," "Industry Looks at Air Pollution Control," "Water Pollution—Its Effect on Natural Waters and Its Control."

Also, "Maintenance Problems of Small Plants," "The Place of the Maintenance Function in Purchasing: The Plant Engineer's Viewpoint and The Purchasing Man's Viewpoint," "Matching Control Maintenance with Systems Engineering," "Welding Advances Adaptable to Maintenance: Applications of Welding and Postheat Treating Weldments," "Sanitation Control: In Food Plants and In Non-Food Plants," "Research and Development Techniques in Maintenance," "Organization and Administration for Electrical Maintenance in Large Plants."

Also, "Getting at True Maintenance Costs for Purposes of Comparison," "How to Plan and Schedule Maintenance Work for Effective Control," "Lubrication of Bearings," "Labor Relations in Plants Having Union Workers," "What the Plant Engineer Should Know About Building," "The Practical Use of Incentives in Maintenance," "Maintenance of Handling Equipment," "Plant Engineering in Planning to Combat Disaster by Floods," "Plant Engineering in Planning to Combat Disaster by Tornadoes," "Data Processing Equipment in Maintenance Work," "DC Testing as a Maintenance Tool," "Testing the Insulation of Low-Voltage Polyphase Motors," "Preventive Maintenance at Work," and "Evaluating Maintenance Performance."

The roundtables included in the text are those of chemical plants, food processing plants, foundries, metalworking and metal fabricating plants, petroleum processing plants, pulp and paper mills, research development and pilot plants, rubber mills and rubber products plants, steel mills and textile mills.

Building Exits Code

New provisions dealing with life safety in schools are among the significant changes in the 1960 edition of the Building Exits Code just released by the National Fire Protection Association.

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SURESEAL GLOVES

SURESEAL MOST SPECIFIED WHERE

- the handling of acids and other corrosive materials demand maximum hand protection.
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Surety Sureseal Gloves, (made from Hycar) give positive protection against the greatest number of acids and other corrosive liquids and wear up to 14 times longer than competitive materials. They are more snag, abrasion and puncture-proof and the exclusive Surety Turn-Cuff gives added protection for arms and prevents liquid from getting into the glove.

Tell us your requirements and test a pair today — at our expense. Write on your letterhead naming your glove jobber and you will receive a pair by return mail.

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(For details, use Key # W-14 on card on page 1)

The revised code, now in its 18th edition, drops former requirements for fire resistive construction and permits construction of any type, provided interior arrangements comply with standards designed to minimize the spread of fire and smoke.

The safety of school buildings with exits direct to the outside from any classroom is emphasized in the 1960 edition, which naturally favors one-story construction. It requires the enclosure of interior stairways, specifies the use of interior finish of low flame spread rating, and limits the maximum distance of travel to exits.

Many revisions appear in other sections of the NFPA Building Exits Code, which is designed to provide reasonable life safety from fire in buildings of all classes and occupancy, including assembly buildings, hospitals and institutions, residential buildings, warehouses and others. The code, first issued in 1913, is widely used as a guide and has been adopted as law in many localities.

Prepared by the NFPA Committee on Safety to Life under the chairmanship of Francis R. Scherer, superintendent of school buildings at Rochester, N. Y., the code was adopted at the international fire safety organization's recent 64th annual meeting in Montreal.

Changes in the code relating to schools are based on fire experience, including the Chicago school fire of December 1958 in which 95 lives were lost, according to Robert S. Moulton, secretary of the committee and NFPA technical secretary. Fire experience indicates that it is the burning of contents and interior finish that contributes principally to loss of life in school fires, he states, and that any combustible structural material of the building does not become involved until long after fatal smoke has spread throughout the building.

Copies of the new edition (NFPA No. 101, 256 pages, $1.50 per copy) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Learning The Hard Way

FULLY PROTECTED, EXCEPT . . .

The gas burner under a cyanide kettle had been relit after a lunch period. The employee, to hasten the melting of the crust that had formed over the top, struck the crust with a pair of tongs. The crust broke and some of the cyanide splashed over the workmen. He was wearing full protective clothing, but had neglected to replace his faceshield. He was fatally poisoned by the cyanide that splashed over his face. Since the employee had been fully warned about the danger, the injury was caused by his own negligence. Here is another example of the continuous need for strict enforcement of safety rules and training of employees in ceaseless caution around hazardous areas.

UNGUARDED PRESS, ETC., ETC., ETC.

This one incident is a tragic example of an almost complete lack of safety in any form. It was the employee's first day at work and after some preliminary instruction in how to operate a punch press, he was left alone to run the machine. The press ram was operated by a foot treadle. The employee soon grew tired from standing all the time and found an old box on which he could sit and continue the job. A few minutes later the box unexpectedly tipped forward. This caused him to push down on the foot treadle and also involuntarily to put out his hand to keep from falling. Unfortunately, his hand went between the dies and part of his thumb and forefinger were amputated by the descending ram. What was wrong here? Just about everything. The machine could have had a guard for the type of operation involved and should have. A completely inexperienced employee should not be placed at a punch press. Instructions must have been inadequate and later supervision was apparently totally lacking. Fatigue plays an important role as the cause of accidents, and a chair of the proper height should have been provided.

DO-IT-YOURSELF BOMB

Two workmen who needed a piece of two-inch pipe found what they wanted in a pile of scrap in back of their plant, but got more than they bargained for. When they started using a torch to cut the pipe to the required length, the pipe exploded and both men were injured severely by the fragments. The pipe had been used for nitrate solution service eleven months previously, and apparently a high concentration of ammonium nitrate had built up in the pipe and was exploded by the heat from the torch. Safety is an important consideration in the disposal of dangerous or potentially dangerous waste or scrap materials. Employees must also be trained in being alert to possible dangers, particularly in welding and cutting operations.

SAFETY IN THE OFFICE

Offices have always been the scene of relatively minor accidents, but now they are becoming increasingly mechanized. This change means that more of the industrial type of accident may be expected. An example is what happened when a young woman was filling the reservoir of a duplicating machine with a flammable solution. She was using a safety can of the proper type with a flexible hose attachment. But two mistakes were made. She had kept the machine running and through inattention had filled the reservoir to overflowing. A spark from the running mechanism ignited the vapors from the spilled fluid. While no one was injured and the fire was quickly extinguished, it did considerable damage to the machine, interrupted the office routine, and could easily have had tragic consequences. The incident indicates the importance of shutting off machines during servicing or adjustment, the need for care in handling flammable liquids, and the vital necessity of training office personnel in safety and in reading and following instructions and warnings on labels.

THE FIRE FRONT

Fire Prevention Week Materials Available

A complete line of materials to promote the 1960 Fire Prevention Week is now available from the National Fire Protection Association, international sponsor of the October 9–15 event.

"Don't Give Fire a Place to Start" is the theme of the attention-getting two-color poster prepared by the nonprofit fire-safety organization. The same message and illustration appear on a coloring sheet for children, a Fire Prevention Week stamp to use on letters and envelopes, and a blotter designed for mailings.

Folders on a wide range of home and personal fire safety subjects are also available from the association.

Two completely new ones are "Can You Get Out," urging families to plan ahead for fire emergencies, and "Fire Prevention for Your Home Workshop," with useful safety tips for do-it-yourselfers.

In addition to home and school self-inspection forms, a one-page "Facts About Fire" has been prepared as an aid in teaching people that fires and fire deaths are not accidents.

Another new item is a phone sticker which has room for emergency numbers and is easily affixed to the base of the instrument.

For samples and information, write the Public Relations Dept., National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

The National Board of Fire Underwriters in 1959 climaxed one of the broadest fire safety education campaigns in its history with Fire Prevention Week, Holiday Safety, and Spring Clean-Up drives exceeding those of any previous year in comprehensive coverage, members of the National Board were told at the annual meeting.

Roland H. Lange, assistant to the president and vice-president, Hartford Fire Insurance Company and chairman of the National Board's Public Relations Committee, told members that more and more fire safety is becoming a year-round activity. The specific campaigns, like Fire Prevention Week, receive whole-hearted support from newspapers, magazines, radio and television stations, and active participants include Fire Chiefs, civic officials, a wide variety of service organizations, commercial establishments, and industrial companies, he added.

"Cooperation by various news media in the cause of fire prevention was reflected in the record use of National Board material, in publications, radio and television," Mr. Lange said. "In response to requests, some 4,100 newspaper mats and 500 feature stories were sent out during Fire Prevention Week alone," Mr. Lange said. "Approximately 22,000,000 pieces of literature, the greatest for any Fire Prevention Week in history, were distributed in response to some 6,000 individual requests last year."

Radio and television stations added their impact to Fire Prevention Week. A total of 17,500 sets of radio and TV spot announcements were distributed around the country for broadcasting use. The Fire Prevention Week minute movie was supplied to 247 TV stations.

The focal point just ahead is Fire Prevention Week which comes October 9–15. This will be followed by intensive Christmas Safety and Spring Clean Up programs.

Throughout the year, the National Board's library of 30 fire safety films was in constant use. They were shown before both adult and juvenile audiences throughout the country.

6 Month Losses Rise

Estimated fire losses in the United States during June amounted to $82,829,000, the National Board of Fire Underwriters has reported. According to Lewis A. Vincent, NBFU's general manager, this loss represents an increase of 6.4 percent over losses of $77,867,000 reported for June 1959, and a decrease of 4.7 percent from loses of $86,940,000 for last May.

Losses for the first six months of 1960 now total $573,971,000, an increase of 2.3 percent over the first six months of 1959, when they amounted to $560,886,000. These estimated losses include an allowance for uninsured and unreported losses.

1960 Fire Contest

More than 1,500 cities, industrial firms, military units and government divisions are expected to participate in the National Fire Protection Association's 1960 Fire Prevention Contest.

The contest, an international competition to provide recognition for excellence in the field of fire safety education and performance, is in its 33rd year. Entries last year exceeded all previous totals, accord-

(Continued on page 47)

You

by **CHARLES H. YOHO**
Fire Protection Supervisor
American Electric Power Service Corp.
New York, N. Y.

In order to clarify the title of this paper, you will find that the subject will be divided into three parts: 1. Reconnaissance; 2. The Actual Fire; 3. Post Mortem. If all three of these parts are carried out effectively by your plant fire brigade, you will have an organization that will be very efficient in keeping fire damage to a minimum.

Too much emphasis cannot be placed on training the individual and the organized fire brigades in the proper handling of the existing fire protection equipment. Regardless of how hard we try to eliminate the possibility of fires we still have a few. Fortunately, most of them are small, primarily because extinguishment is effected during incipiency. Occasionally, however, we do have a fire of serious proportions; but in general the fires at any one location occur so infrequently that it is necessary continually to conduct fire fighting demonstrations and practice runs on staged fires to keep the personnel in training.

In order to have a good efficient fire fighting brigade you must base your organization on the following four items:

1. **Personnel.**
   - **A. Select members with regard to personality, physical qualifications and availability.**
2. **Apparatus and Equipment.**
   - **A. Must meet the needs of plant.**
   - **B. Importance in its care.**

Man encased in the protective equipment, below, is undergoing practice test using self-contained breathing device.

3. **Training.**
   - **A. Must be systematic.**
   - **B. Must be up to date.**
4. **Leadership.**
   - **A. Must have confidence of men.**
   - **B. Be given full power to act in time of fire.**

If any one of these items is missing the fire brigade cannot possibly be a success and the entire program will fail.

Fighting the Fire the First Time

Reconnaissance—We got this word from the French and it means "to make a preliminary examination." Its use in the English language was introduced as part of the vocabulary of warfare. Information about the enemy is essential to victory. You may have the best equipped and best trained army; but if you do not have the necessary information concerning your enemy, such as his location, the lay of the land over which the troops must travel, their strength, etc., you could lose the battle.

The fire service is a continual battle. At any hour of the day or night you must be ready to stop the spread of fire and to rescue persons endangered by fire and smoke.

Modern fire methods, like modern warfare, must be based upon exact knowledge of the possible behavior of the enemy. It cannot wait for the attack, but must be prepared to operate efficiently upon the first appearance of danger. To do this, advanced knowledge is an important requirement.

The municipal fire departments gain this knowledge through their inspection programs and their fire prevention bureaus. This information is then passed on to the officers and men of the fire department.

In the industrial plants we must gain this same advance knowledge by going over our plants and making a list of all the locations where fires are most likely to start, and then lay out plans for fighting these fires. The following things must be taken into consideration:

How are you going to approach the area if the normal approach is blocked by fire? What equipment will be needed to fight a fire in this particular area? What are you going to back up your first line of defense with? Will breathers be necessary—if so, what type? What are the possibilities of an explosion in this area?

Make your program work so that each member of each shift fire bri-

Group of men shown fighting blaze in the photo above are using a water fog nozzle in battling a large oil pit fire.

Fight Each Fire Three Times

gade becomes familiar with the proposed set-up for each location where fire is likely to occur. This can be done by having fire drills at these locations; and when the fire alarm sounds for a drill or a real fire, every member of the fire brigade will know what is expected of him and he will perform according to prearranged instructions. This is the first time you fight a fire **—before it really happens.**

Fighting the Fire the Second Time

The second time you fight a fire is when the fire actually occurs.

In the early days of our country the only means of fighting a fire was by using buckets of water. Everyone would keep a number of these filled and conveniently located. As values increased and hazards became greater, a better means of fire fighting become necessary and the chemical fire extinguisher was developed. But its

Here the author is giving assembled group some important lessons in the knots which will be used in fire fighting.

A demonstration is going on here of the employment of a hand extinguisher as battle is waged against an oil fire.

early cost prevented its acceptance, and even today it is not sufficiently found in private homes. With most buildings and homes having running water, a small hose is more generally used for first aid fire fighting.

In industry great strides have been made in applying water or other extinguishing aids quickly to a fire. Arrangements have been made for permanent installations of piping, hose connections, source of supply and operating machinery to apply these agents automatically within a few seconds of the start of a fire, such as foam, CO_2, sprinklers, dry chemicals, etc. However, fires are unpredictable and the brigade must stand by and be ready to take over and extinguish the fire with hand equipment.

In installing fire protection equipment in an industrial plant, always try to install fire equipment that has been tried and proved to be successful. Of course this is not always possible because you may have to design certain fire protection yourself for a particular hazard.

All fire fighting is based on nine points and a successful fire fighting unit will carry out each one of these points to the best of its ability. These points are as follows:

1. **The Alarm**
2. **The Run**
3. **Size Up**
4. **Rescue**
5. **Exposure–Confine**
6. **Extinguishment**
7. **Salvage**
8. **Ventilation**
9. **Overhaul & Pickup**

The Alarm—A dependable alarm system properly maintained is an important factor in fire fighting tactics to summon fire fighters to scene of fire.

The Run—After the alarm has been sounded, the next item is making the run to the fire. In industrial fire fighting, be sure and pick up the fire equipment that has been assigned to you and proceed to the fire scene.

Size Up—The man in charge of the fire brigade when arriving at the scene of a fire must make a quick survey and analyze the situation, weigh the various factors, decide what should be done, formulate his plan of operation and exercise command.

Rescue—The first action to be taken upon arrival of the first person upon the fire scene is the rescue of person or persons from the fire area. Therefore, the chief of the fire brigade and each member of the brigade should thoroughly understand the principles governing rescue, be trained in rescue work and have a working knowledge of the use of rescue equipment.

Confine and Exposures—It is always the aim of the fire brigade to prevent the fire from spreading beyond the extent it has gained before their arrival. Therefore it is necessary to surround the fire with sufficient equipment of the correct kind for that type fire. The fire is then under control if it cannot spread to adjacent materials, equipment or buildings.

Extinguishment—There can be no set rules for extinguishment, although there are a number of good practices that with good judgment could be used at most fires. They might be listed as follows:

1. Always size up the fire, eliminate snap judgment.
2. Fight fire as closely as possible.
3. Select the proper extinguishing agent.
4. Be careful not to drive fire into other parts of building.
5. Back up your small lines with large ones readily available.
6. Etc.

Salvage—If we look up the definition of salvage in the dictionary we would find it means "saving property." From this definition we may safely assume that salvage should be given serious consideration by every fire fighter from the time of size-up until after the fire is completely extinguished. A large percentage of fire loss is actually water loss, therefore an effort on the part of those fighting fire should be to improve the loss record by reducing the water damage.

Ventilation—In scientific fire fighting there is no operation more important than ventilation and it serves three general purposes:
1. To relieve the building or structure of accumulated heat, smoke and gases, thereby making entry by the fire fighters possible.
2. To draw the heat, smoke and gases up a selected channel, thereby preventing the fire from spreading.
3. To remove safely the accumulated heat, smoke and gases, thereby preventing an explosion or "back draft."

Overhaul and Pick-up—"Overhauling" in fire fighting refers to the practice of completing operations at a fire after the main fire has been extinguished, searching for any sparks or fire in the building or any article that has been subject to the fire so that there is no danger of the fire rekindling; also placing the building in a safe condition before leaving the scene. "Pick-up"—after the fire is extinguished and the excitement has subsided there is still a lot of work to be done restoring fire apparatus and equipment to its normal condition and making it ready for the next alarm which may come all too soon.

This is the second time you fight the fire.

Fighting the Fire the Third Time

The third time you must fight the fire is after it is extinguished and the work of the fire brigade is finished. This is called the critique or post mortem.

In this operation a discussion should take place with all members of the fire brigade present as soon after the fire as possible. In this discussion all points should be brought up, from the time the alarm sounded until all fire equipment is restored to its normal condition, and a careful analysis should be made of every operation.

If errors have been made this is the place to discuss them—NOT out in the plant with people who are not members of the brigade. The only purpose of pointing out errors, and errors will be made, is to try to eliminate the possibility of the same error being committed at future fires. Avoid arguments as they will only affect the morale of the brigade. The leader must be in control of the discussion at all times and should give every member an opportunity to express his views on the various phases of fire fighting that took place.

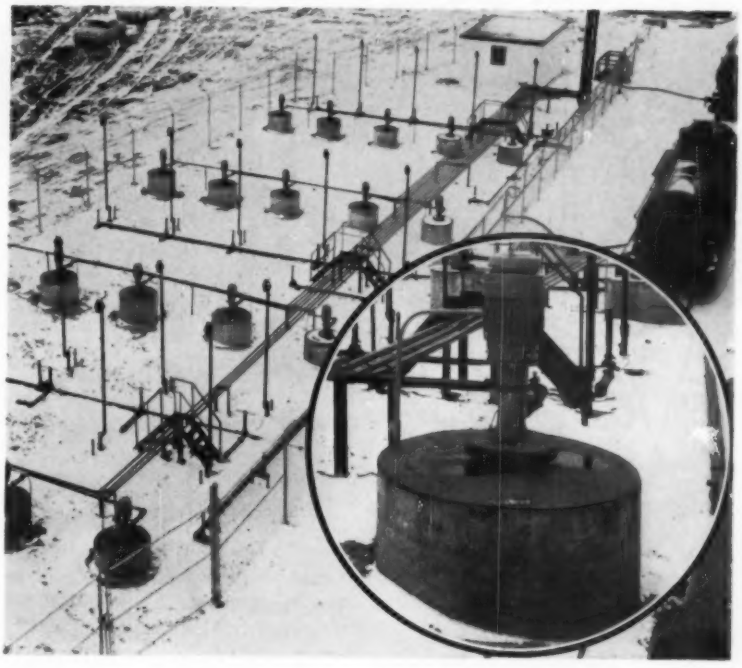
During the actual fire fighting it is an unwritten law that you

never question the orders of the man in charge for this reason—you only see the picture from one angle while the man in charge is looking at it with an over-all view. The time to question the leaders' actions is during the critique or post mortem.

It is better to review a point several times than to pass over it without the answer being clearly understood. Many fire fighters hesitate to ask questions because they think it will reveal their ignorance of something that they should know. It is a wise leader that can set his men at ease and overcome this situation.

This is the third time you fight the fire.

From an address presented at the 1960 Virginia Safety Conference. Pictures by courtesy of American Electric Power Service Corp.



1960 Fire Contest
(from page 43)

ing to Percy Bugbee, general manager of the Boston-headquartered organization.

The fire prevention programs to be described in the entries are now in action in hundreds of cities and industrial plants throughout the United States and Canada, as well as at military and government installations.

Entry forms, returnable by November 30, are available from the NFPA offices in Boston. There are separate forms for municipal, industrial, government and military enteries.

Top winners in the municipal division last year were Louisville, Kentucky, and Vancouver, British Columbia.

The Montreal Transportation Commission, which provides transit service for Canada's largest city, took honors in the industrial division.

First in the government division was the United States Post Office at Chicago, Illinois.

U. S. Army's Fort Sam Houston, Myrtle Beach (S. C.) Air Force Base, the U. S. Naval Station, Norfolk, Virginia, and RCAF Station Falconbridge in Ontario received the grand awards in the military division.

Flammable Liquid Storage Goes Underground

When highway engineers of New York State informed Pratt & Lambert, well-known Buffalo, New York paint and varnish manufacturer, that a new arterial highway would pass through their plant property, they didn't realize that a blessing in disguise was in the making. As plans progressed for the highway, surveyors discovered that the true path of the highway passed directly through Pratt & Lambert's solvent and thinner storage area. The large storage tanks back of the plant would have to be moved to make room for the right of way.

The company's solvents and thinners were stored in above-ground tanks. The liquids were transported to the plant in tank cars and pumped from the tank cars into the storage tanks. To draw on these liquids for production purposes in the plant, other pumps were required to pump the liquids from the storage tanks into smaller distributing tanks inside the factory.

When informed that they would have to move their storage facilities, Pratt & Lambert engineers decided that a drastic revision in their storage and handling procedure for solvent and thinner should be made.

A location for the new storage site was laid out closer to the plant. Instead of storing the material in above-ground tanks as before, engineers decided that eighteen 12,000-gallon underground storage tanks would be more practical and also safer. By placing the tanks underground, they eliminated a pumping operation. Tank cars could be unloaded by gravity directly into the storage tanks below ground level.

Pratt & Lambert engineers decided that each underground storage tank should have its own pump

(Continued on page 59)

FLUORESCENT GLOVES

A bright fluorescent orange makes the Granet Corp.'s Glo-Gluvs readily visible for signaling or hazardous work. The new gloves have a jersey lining with vinyl plastic coating. They are said to be liquid-proof and abrasion and solvent resistant. The manufacturer also asserts that they will neither crack or peel.

For details, use **Key # PC-1** on inquiry card on page 1.

DISPOSABLE SAFETY SUIT

A disposable plastic suit designed to protect workers in all industrial operations involving exposure to chemicals, water and excess dust or dirt, is offered by Safety First Supply Co. Suit is said to resist most acids and alkalis and fire as well as being waterproof and unaffected by oil or grease. The light yellow polyvinyl chloride slip-over jacket and trousers fit comfortably over ordinary work clothing. Elastic tape at neck, wrists and ankles insures a tight fit for additional protection against dust, sprays and splashes. Priced low enough to be economically disposable.

For details, use **Key # PC-2** on inquiry card on page 1.

FIREMAN'S SAFETY BOOT

A new boot developed by the B. F. Goodrich Footwear Co. and called the Firefighter has a flexible steel punctureproof sole and overlapping steel plates which have been placed within the boot to form a flexible safety insole. Permanent steel plates assure firemen protection from foot injuries caused by nails and debris. Boot will also feature extra layer of rubber in places where boots tend to chafe, neoprene knee bands for resistance to cracking and fully coated rubber straps and buckles. Available in short and Stormking heights.

For details, use **Key # PC-3** on inquiry card on page 1.

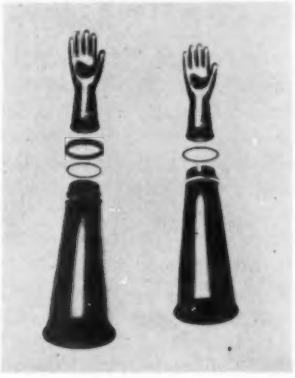
NEW LINE OF HARD HATS

New safety headgear, available in a choice of fiber-glass, aluminum and plastic (electrical), covering a full range of standard colors, is announced by Bausch & Lomb. A contour-fit suspension, acheived by a unique design of pliable polyethylene, enables the hats to conform to the head, giving "soft-hat" comfort

PROTECTIVE CLOTHING DEVELOPMENTS

without top-heavy feeling. Lock straps assure minimum crown clearance of 1¼". A numbered snap-in adjustment provides quick, easy fitting to any head size from 6⅝ to 8. Suspension may be left intact for cleaning and sterilization, but can easily be removed for replacement. Plastic-zippered sweatband can be taken out and replaced without affecting suspension. Flame and corrosion resistance, heat reflection, and complete insulation are some of the benefits offered by the different models.

For details, use **Key # PC-4** on inquiry card on page 1.



ECONOMIC DRY BOX GLOVES

A two-part glove designed especially for use in "dry box" operations has been introduced by The Surety Rubber Co. Available in rubber, neoprene and Sureseal, the Sure-Lock provides for quick replacement of gloves or glove without disposing of the costly sleeves. Locking-ring feature enables the operator to change gloves without removing the sleeve from its fastened-on position in the port opening of the dry box. Supplies in the two styles shown: the single ring for regular applications and the double ring when it is necessary to have the seal completely air or gas proof; 27" and 30" over-all length with 5" I.D. or 8" I.D. opening. Thickness can be varied to conform to any requirements.

For details, use **Key # PC-5** on inquiry card on page 1.

CHEST-WAIST SAFETY BELT

Rose Mfg. Co. has developed what they believe to be the safest construction belt in the world for high altitude workers; meets the requirements of the American Society of Safety Engineers for eliminating body injuries caused by the shock load resulting from a fall. The shock load is divided between the chest and the waist, greatly reducing the danger of injury from impact. It also eliminates danger of slipping out of the belt. The chest part of the belt may be worn loosely to permit easy breathing while the waist part should be worn snugly. Even though the belt has great strength, it weighs only two pounds.

For details, use **Key # PC-6** on inquiry card on page 1.

HORSEHIDE WORK GLOVES

New, flesh split horsehide leather palm work gloves with cuffs that are both washable and dry cleanable have been introduced by the Riegel Textile Corp. Softer, more flexible and thus more comfortable than ordinary cowhide gloves, the horsehide can stand considerably more soaking and drying, and should be able to withstand higher heat temperatures without shrinking, Riegel claims; they anticipate many applications in industry.

For details, use **Key # PC-7** on inquiry card on page 1.

CLOTHING FOR LIQUID OXYGEN HANDLING

A special garment to be worn when handling liquid oxygen has been designed by M. Setlow & Son, Inc. The garment, made of vinyl coated glass cloth, offers not only complete coverage for the head and body, but opens down the back. The hood can also be slipped forward when not in use. Material is also acid and abrasive resistant.

For details, use **Key # PC-8** on inquiry card on page 1.

VINYL GLOVE

Impreganted work gloves, designed for longer wear, are available from the Surety Rubber Co. The company claims its Four-To-One gloves outwear cotton and many types of leather gloves by four or more to one. Styled for soft flexing hand comfort and positive gripping action, the gloves are extremely abrasion and snag resistant.

For details, use **Key # PC-9** on inquiry card on page 1.

NYLON COVERALLS WITH BOOTS

Coveralls with attached boots are being manufactured by M. Setlow & Son, Inc. The garments are made from lint-free white nylon pack cloth and are available either with plastic buttons or zipper front closing. The boot is formed by continuing the back panel of the leg until it meets the sole of the boot, and by shaping the front panel of the leg to form the front of the foot. The sole is made from three thicknesses of the nylon material, cross-stitched for strength. The garments can also be made with attached gloves.

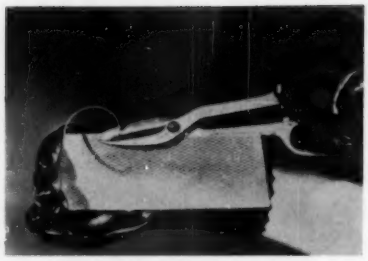
For details, use **Key # PC-10** on inquiry card on page 1.

LIGHTWEIGHT SAFETY SHOE

Pigskin safety shoes, saving a pound or more in weight over conventional safety oxfords, have been introduced by Haus of Krause. The Sportlite incorporates steel toe protection with sport shoe styling. A specially designed foundation for the steel box has a channel in which the edges of the box ride to prevent spreading under impact, and also prevent the box from cutting into the lightweight sole. The shoes are tanned with Kemi-Klad leather protector, said to resist water, waterborne stains, acids, alkalis, etc.

Tiny airshafts in the pigskin permit ventilation for healthier feet, and the lightweight, oil-resistant Neoprene Nitro-crepe sole is said to be flexible, buoyant, provide comfortable wear, and reduce fatigue.

For details, use **Key # PC-11** on inquiry card on page 1.



HEAVY-DUTY GLOVES

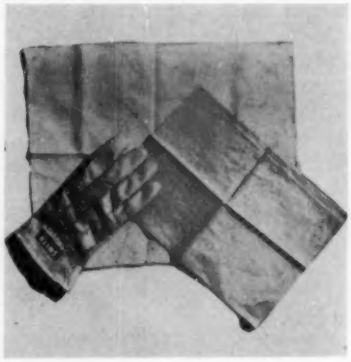
Longer glove life and positive hand protection are claimed for Multi-Pli Stanzoil Pacemaker work gloves introduced by The Pioneer Rubber Co. Made of liquidproof, DuPont neoprene, with a soft, flannel inner-lining for greater comfort, the new hand protectors are available in knit-wrist and gauntlet styles. The company states that tests show the new work gloves give more than three times the wear of ordinary coated gloves on many jobs. The palm and thumb crotch areas, those most susceptible to abrasion and wear, have been reinforced to produce a longer service-life for the gloves. Said to withstand snagging, cutting and abrasive abuse from heavy rope, cable and metal sheeting, and resist deterioration from oils, acids, caustics, solvents and greases, while providing maximum comfort and finger dexterity.

For details, use **Key # PC-12** on inquiry card on page 1.

FUEL HANDLING CLOTHING

Vinyl nylon apparel, designed for wear by rocket fuel handlers and similar personnel, is offered by Sawyer-Tower, Inc. Model R&D #500 (shown in picture) features a 52" acid-resistant self-sealing zipper, polyurethane ring cuffs with attached gloves, and sewn-on boots. Model #66–315, a coverall-type suit without hood or boots, features acid-resistant sleeve zippers as well as a similar zipper down the front.

For details, use **Key # PC-13** on inquiry card on page 1.



NEW PROCESS ASSURES HEAT RESISTANT FABRIC

A revolutionary process for impregnating any textile material or fabric with aluminum, has been developed by Baxter, Kelly & Faust, Inc. This process permits the fabric to retain its original strength, texture, design and flexibility, while making the material heat resistant up to 2500° F. According to tests made by United States Testing Company, the coating prevented 96% of heat from penetrating the materials tested; even fireproof materials such as asbestos were said to have had their effectiveness increased after being treated. Range of uses are said to be limited only by the imagination.

For details, use **Key # PC-14** on inquiry card on page 1.

DISPOSABLE PLASTIC GLOVES

Disposable polyethlene gloves, manufactured by the Wilson Rubber Co., may be worn on either hand and are easy to slip on or off. Lightweight, flexible and moisture-proof, the gloves protect hands

from many chemicals, powders, and resins. They also safeguard precision parts against perspiration corrosion and keep foods free from hand contamination. Poly-D gloves provide excellent resistance to snagging without sacrificing manual dexterity and touch-sensitivity.

For details, use **Key # PC-15** on inquiry card on page 1.

SLIP RESISTANT GLOVES

A neoprene coated work glove with a "wet grip" to facilitate handling of oily and slippery metal stock with sharp edges has been announced by the Granet Corp. The Python glove combines chemical resistant neoprene latex with a comfortable flannel lining.

For details, use **Key # PC-16** on inquiry card on page 1.

ASBESTOS SAFETY CLOTHING

Asbestos clothing that sheds molten metal at 3000° F without deterioration, loss of resiliency or discoloration of inner side has been announced by American Optical Co. Called Thermogarb, the fabric offers 40% to 50% greater abrasion resistance than ordinary asbestos, and has nearly double the tensile strength of fabrics twice its weight and thickness, according to the manufacturer. Garments reflect approximately 50% of radiant heat and are extremely light in weight. This clothing is also recommended by the maker for applications involving exposure to glass, chemicals, ceramics and oils. The line includes coats, leggings, cape sleeves, coveralls, sleevelets, spats, pants, chaps and aprons.

For details, use **Key # PC-17** on inquiry card on page 1.

SAFETY SHOES AND BOOTS

Off-the-job safety, as well as safety on the job, is reported by Hy-Test Div., International Shoe Co. to be featured in three new oxfords and two boots added to its line. The oxford line includes a dirty-buck, an embossed 4-eyelet, and a casual style. The boot includes an 8-inch sportsman type nok-a-bout boot and a 10-inch all-purpose black plain-toe boot. All five styles feature the Anchor Flange steel box toe.

For details, use **Key # PC-18** on inquiry card on page 1.

VERSATILE SAFETY FABRIC

A treated fabric said to shed molten metal splashes up to 3000° F., be completely flameproofed, be 50% more impervious to heat than is standard asbestos, and resist acids, alkalis and oil has been announced by Safety Clothing & Equipment Co. The fabric is known as Solar-Guard and garments are being constructed of it according to customer specifications. Lighter weight and abrasion resistance are also cited.

For details, use **Key # PC-19** on inquiry card on page 1.

CHEMICAL RESISTANT HOOD

Liquid-tight hood, manufactured of chemically resistant material by Standard Safety Equipment Co., is shoulder supported to provide comfort during long periods of wear. Sealed-in wires hold the hood free of the head. Head movement is as easy as if no hood was worn at all. Fresh air enters through a ventilation port, while liquids are prevented from penetrating. Airline model also available.

For details, use **Key # PC-20** on inquiry card on page 1.

MYCOLEUM

MYCOLEUM all-purpose neutral liquid soap is kind to the most delicate tiles and resilients, yet gives real cleaning power and economy on all resilient, non-resilient and sealed wood floors. Its low-sudsing, free-rinsing properties keep time and labor costs down. And it's an ideal general purpose cleaner for wall, woodwork, and all painted surfaces.

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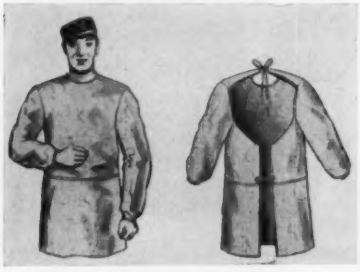
OFFICES IN PRINCIPAL CITIES
(Use Key # W-15 on card on page 1)

LEADED DRY BOX GLOVES

Lead-loaded dry box gloves, made by Charleston Rubber Co., are being offered in standard heavyweight and lightweight thicknesses, in several dimensions, styles and hand sizes. Rad-Bar gloves, manufactured of lead-loaded, seamless, milled Neo-Sol Neoprene by the multiple dip process, are designed for soft gamma shielding. Like all Charco dry box gloves, they are high voltage electrically tested to assure adequate protection. The gloves are of a density of 3.95 grams per cubic centimeter.

The company reports that test of Rad-Bar dry box gloves, conducted on Cadmium 109 at .087 Mev. show that the heavyweight glove, with 0.060" nominal overall glove thickness has a lead equivalent of 0.36 MM and the lightweight glove with 0.030" nominal overall glove thickness has a lead equivalent of 0.10 MM.

For details, use **Key # PC-21** on inquiry card on page 1.



DISPOSABLE SAFETY CLOTHING

Tear- and flame-resistant clothing, offered by the Singer Glove Mfg. Co. as a solution to the cleaning problems created by the use of epoxy coatings and resins, and similar unwashable substances. The Tempora line consists of capes with sleeves and bib aprons and sleeves made of a lamination of cloth and fiber. The clothing is soft and pliable.

For details, use **Key # PC-22** on inquiry card on page 1.

OIL-RESISTANT GLOVES

Oil-resistant terry cloth work gloves which retain their dexterity and positive grip when handling

oiled or greased material are available from Jomac Inc. Known as Oilmacs, the gloves have been treated to prevent the thick loop-pile fabric from absorbing oil. They do not become heavy and cumbersome as do oil-soaked gloves. At the same time they do not become slippery from oil, hence permit a good grip on the article or material handled. The thickness and flexibility of the material cushions the hands against sharp edges, making the gloves particularly useful in handling slippery metal sheets and strip. The glove also cushions against rough surfaces. Oilmacs can be dry cleaned repeatedly and still retain their oil-repellant characteristics.

For details, use **Key # PC-23** on inquiry card on page 1.

HIGH GLOSS HARD HATS

A highly-glossed finish, now molded in the Apex line of fiberglass hats and caps, produced by Boyer-Campbell Co., is said to be thoroughly impervious to scratches, bumps and weather exposure. Finish also furnishes greater resistance to dirt and stain, and provides visibility at a greater distance as a result of increased light reflection. The entire line of headwear features a unique self-locking polyethylene suspension system which tends to tighten to the hat or cap shell with impact, rather than loosen, for greater wearer safety.

For details, use **Key # PC-24** on inquiry card on page 1.

NEW FIRE-FIGHTING SUIT

A fire-fighter's suit, designed of fabrics 50 percent lighter than conventional materials, has been announced by Mine Safety Appliances Co. The Fireman's Bunker Suit is made of flame-proofed aluminized fabric which reflects 90 percent of radiant heat, and enables the fire-fighter to work closer to burning

areas. The coat is equipped with detachable rubber lining, aluminized snap fasteners, reinforced shoulders, two flap pockets, and sleeves designed for easy arm movement. The trousers feature detachable rubberized lining, two large hip pockets, adjustable take-up waist straps, and brass suspender buttons.

For details, use **Key # PC-25** on inquiry card on page 1.

PLIABLE WELDING GLOVES

A new welders' and burners' glove has been introduced by the Wicx-Merit Glove Co. Manufactured from heat resistant split deerskin, the natural softness of the leather provides for increased hand and finger flexibility during welding and burning operations. Available in a one-finger mitt and a five-finger glove.

For details, use **Key # PC-26** on inquiry card on page 1.

WOODEN SOLE FOOTWEAR

A complete line of wooden sole safety shoes, sandals, boots and pacs are being manufactured by M. L. Snyder & Son, Inc. They are designed for use in industries where acids, alkalis and solvents would normally corrode rubber or leather soles. The leather-topped shoes are waterproof in most applications with occasional greasing of the leather. The sandals, in either flat or hinged styles, fit over work shoes. Wood is a non-conductor of electricity, making it especially suitable for certain applications.

For details, use **Key # PC-27** on inquiry card on page 1.

IMPROVED SAFETY HATS

Improved safety and weathering characteristics in their SuperGlas safety hats and caps are announced by The Fibre-Metal Products Co. The new safety feature is a single injection-molded polyethylene suspension unit with both a fixed safety factor of a 1¼" clearance from the crown of the hat or cap, and an additional adjustable clearance laced to fit the individual user. The entire suspension, including headband, is comfortable, rugged and easy to clean. The polyethylene suspension is interchangeable.

For details, use **Key # PC-28** on inquiry card on page 1.

WELDERS' SAFETY CLOTHING

Flame-resistant finely woven cotton twill clothing in black has been announced by the Singer Glove Mfg. Co., who report its cost to be less than half that of leather. Offered for use in inert gas arc welding, the Blackline clothing is designed to provide safety and comfort where the danger of heat, flame or solder splashes is present. Lightweight, it is available in capes with bib, bib aprons and full jackets.

For details, use **Key # PC-29** on inquiry card on page 1.

HIGH VISIBILITY VESTS

A bib style red flagman's vest made of fluorescent vinyl bonded to nylon fabric, has been developed by Industrial Products Co. to provide greater personal safety for utility, maintenance and construction crews working on or near highways, railroad workers, etc. Coated and polished on both sides, and completely reversible, front to back and inside to outside, the vest furnishes a solid red warning panel across wearer's chest and back. Supplied in a universal fit.

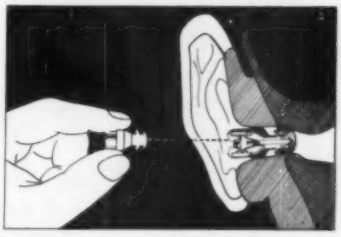
For details, use **Key # PC-30** on inquiry card on page 1.

METATARSAL FOOT GUARD

A new metatarsal guard, designed to supplement protection provided by steel toe safety shoes, has been announced by the Albert W. Pendergast Safety Equipment Co. The Alpenco Metagard, of stainless steel construction padded with a heavy cushion of neoprene sponge, attaches through the laces of the shoe. It does not interfere with the flexing of the ankle, whether walking, bending, climbing, etc. Fits all sizes of lace type shoes.

For details, use **Key # PC-31** on inquiry card on page 1.

HARMFUL Effects of NOISE to the EAR DRUMS ELIMINATED by *Lee Sonic* EAR-VALVS



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(Use Key # W-16 on card on page 1)

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Red Wing, Minnesota

(Use Key # W-17 on card on page 1)

ALUMINIZED CHEMICAL GLOVE

A low-cost, coated work glove, constructed for durability, has been introduced by the Surety Rubber Co. The Silvertex coating insures maximum resistance to most industrial chemicals and is also snag and abrasion resistant; reflective quality helps to keep the worker's hands cool and comfortable. The coating will not crack or peel and remains pliable for the life of the glove.

For details, use **Key # PC-32** on inquiry card on page 1.

ELECTRICAL SAFETY HAT

A safety hat which meets or exceeds all requirements of the Edison Electrical Institute specifications for insulating safety headgear is offered by Willson Products Div., Ray-O-Vac Co. Molded in one piece of moisture-proof resilient plastic, the Volt Shield is completely without joints or holes. Critical points have been reinforced for greater impact and penatration protection, allowing for longer-lasting service. The hat will withstand 40 footpounds of pressure without decrease in dielectric strength. Voltage protection is equally effective in temperature extremes. The hat is resistant to water, oil, grease, and most chemicals, allowing an even more versatile and expanded number of uses. Fully non-conductive, hat utilizes Geodetic suspension to dissipate shock waves over a wide area. Available in a cap style.

For details, use **Key # PC-33** on inquiry card on page 1.

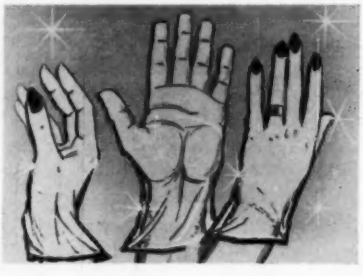
LANYARD SHOCK ABSORBER

Unolyn shock absorber for safety lanyards prevents the damaging jolt resulting from a fall. If a shock absorber is not utilized, a fall may cause severe internal injury or possible death. Safety men can be sure their high workers are using the shock absorber by splicing it directly into the belt. The Rose Manufacturing Company also makes the shock absorber separately with a loop splice or snap at ends to attach to any safety lanyard. If necessary, the absorber will stretch to full length depending upon the impact. Made of chemically treated nylon.

For details, use **Key # PC-34** on inquiry card on page 1.

DISPOSABLE GLOVES

Disposable low-cost, polyethylene gloves with a variety of applications are being produced by the Olympic Glove Co. The gloves are strong, air-tight and water-tight, and their skin-thin quality allows the texture of whatever is handled to be felt through the material. The Oly/Poly glove is made of a special grade polyethylene which permits pulling on and off repeatedly with little stickiness. Depending on the job, it may be used as an overglove, or on the bare hand in many areas in which abrasion is not a factor, but complete protection is required. Applications range from lint-free inspection of fine parts to dirty and greasy industrial jobs, certain chemical operations, painting, and plant visitors, etc.



For details, use **Key # PC-35** on inquiry card on page 1.

NON-SLIP NEOPRENE GLOVES

A surer grip area has been added to the Neoprene glove manufactured by Wilson Rubber Co. to increase its range of industrial application, and a new white line has been developed for use in food processing. The new Wil-Grip Firmhold Finish is said to be a logical improvement in a glove offering superior resistance to most oils, fats, greases, petroleum solvents and caustics.

The special finish—minute crosshatches of material to provide a rough, gripping surface—is molded directly into the fingers and palms of the gloves. It gives added gripping and holding friction on wet or slippery surfaces. Gloves are reported durable, touch sensitive and non-allergenic.

For details, use **Key # PC-36** on inquiry card on page 1.

NEW SAFETY SHOES

Longer wear and increased comfort are claimed for their new safety shoes by Iron Age. The Highlander line of both oxfords and high shoes glove leather is tanned with Scotchgard brand leather protector. This treatment is said to result in leather that is more flexible at low temperatures; is more porous and so "breathes" better, and is more comfortable on the foot. It is also claimed to impart a superior resistance to water, acid, alkalies, mold and perspiration to assure that these shoes hold their shape and retain their original appearance for a longer period. They are provided with Goodyear Cobra oil proof soles and heels for safety underfoot.

For details, use **Key # PC-37** on inquiry card on page 1.

LEATHER REINFORCED GLOVES

An extra heavy-duty patch of leather reinforcing at critical points of wear has been added to their standard styles by the Monte Glove Co. The additional strength around palm, thumb and fingers results in significant increases in glove life, and in some cases more than double the normal wear, the company reports.

For details, use **Key # PC-38** on inquiry card on page 1.

"EXOTIC" FUEL GLOVES

Gloves made from butyl rubber have been developed by the Olympic Glove Co. for use with many new "exotic" missile fuels and similar highly corrosive compounds. It is reported that manufacturers of these fuels recommend the use of butyl rubber as the best, the safest and, in the long run, the cheapest protection for handling their products.

For details, use **Key # PC-39** on inquiry card on page 1.

PROTECTIVE RAINWEAR

An inexpensive rainsuit, composed of jacket, overalls and hood, is being marketed under the name Davis Jetsun Clothing by the Davis Emergency Equipment Co. When folded it can be carried in an automobile glove compartment. Designed for use by utility, oil, railroad, highway and other outdoor personnel, the suit is made of lightweight vinyl film and has electronically welded seams, plastic buttons and air vents under the arm. It is reported resistant to acids, oils and chemicals, and will not stiffen at –20°.

For details, use **Key # PC-40** on inquiry card on page 1.

ELECTRICAL HARD CAPS

Injection molded, all plastic hats and caps, individually dielectrically tested to meet E.E.I. Specification AP-1 1959, are available from Davis Emergency Equipment Co., Inc. Extremely lightweight and with no metal parts, the new Hedgard hats and caps are strong enough to withstand repeated 40 ft. lb. impact tests. Molded lugs on the brim per-

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WARSAW, INDIANA
(Use Key # W-18 on card on page 1)

RETARDED
CHILDREN
CAN
BE
HELPED
Support Your
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Retarded Children

mit the attachment of chin straps. Plastic snap-in suspension holds the hat securely by gripping low on the back of the head; permits adjustment for head sizes 6½ to 7¾, and adjustment of suspension on either side for added comfort.

For details, use **Key # PC-41** on inquiry card on page 1.

CONTAMINATION-PROOF SHOE COVERS

Plastic shoe covers said to afford full protection against contamination from radioactive materials are available from Defense Apparel. The makers report that the shoe covers meet the exacting specifications of the Atomic Energy Commission. Waterproof, lint-free, dustproof, and washable. Protection from grease, oil and most acids is also assured. These shoe covers are strong yet lightweight and are made with non-slip soles as an added safety measure.

For details, use **Key # PC-42** on inquiry card on page 1.

Correction

The name of Herbert C. Rosenthal, Director of the Graphics Institute, was inadvertently omitted as author of the article, *"How to Use Filmstrips or Slides for Safety."* in the August issue of Safety Maintenance.

Radiation Problems
(from page 19)

form "AEC 374" is issued whose identifying number must then accompany all purchase orders to suppliers of radioactive materials.

Newly revised licensing procedures will soon permit purchase of certain types of measuring and quality control devices without a license. In this case the supplier of the device must furnish the AEC with complete manufacturing drawings and details of all safety features.

Distribution procedures and the maximum amounts of radioactive material that can be procured from a supplier without a specific license are all clearly listed in the Code of Federal Regulations, Title 10—Atomic Energy, Part 30, entitled "Licensing of By-product Material," commonly referred to as 10 CFR 30. A partial list of the quantities of radioactive material and the forms in which they can be purchased without obtaining a license from the AEC is listed in Table 1.

Safety Information

Another section of the Federal Regulations, 10 CFR 20, is specifically devoted to the safety considerations and is entitled "Standards for Protection Against Radiation." This is often supplemented by state codes which are generally patterned after the federal regulations. There is also available a wide variety of safety booklets issued by the National Committee on Radiation Protection and Measurements which is sponsored by the National Bureau of Standards, working through its eleven subcommittees. These booklets are indispensable guides to those engaged in the use of radioactive materials and are available by purchase from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Some of the titles of these handbooks are: 1. Safe Design & Use of Industrial Beta-Ray Sources; 2. X-Ray Protection; 3. Permissible Dose from External Sources of Ionizing Radiation; 4. Radioactive Waste Disposal in the Ocean; 5. Radiological Monitoring Methods and Instruments; 6. Safe Handling of Radioactive Isotopes; 7. Protection Against Radiations from Radium Cobalt-60 and Cesium-137; and 8. National Committee on Radiation Protection & Measurements.

Internal Hazards

It is a commonly accepted fact that the two hazards we face in working with radioactive materials are the internal and external hazards. The internal hazard is that which is created by airborne radioactive material in the form of fine dust or powders and vapors which may potentially be ingested or inhaled. This hazard can be a serious one when the radioactive material has a strong affinity for a particular organ in the body and becomes totally lodged in the organ.

The National Committee on Radiation Protection & Measurements has established certain max-

TABLE 1

Element	*Half Life*	*AEC Exempt Quantity, (uc)* *Solution*	*Sealed Source*
Antimony-25	2.7 years	1	10
Calcium-45	163 days	10	10
Carbon-14	5568 years	50	50
Cesium-137	30 years	1	10
Chlorine-36	3.08×10^5 years	1	10
Cobalt-60	5.27 years	1	10
Iodine-131	8.08 days	10	10
Nickel-63	85 years	1	10
Promethium-147	2.6 years	10	10
Ruthenium-106	1.0 years	1	10
Strontium-90	25 years	0.1	1
Sulfur-35	87.1 days	50	50
Thallium-204	4.0 years	50	50
Tritium (H^3)	12.5 years	250	250

imum airborne contamination levels as well as maximum concentrations in water which are permissible to humans. These are clearly listed in both the state and federal regulations. All industrial laboratories must evaluate the possibility of this type of exposure to their personnel and provide, if necessary, the proper safeguards, such as **properly designed and ventilated exhaust systems, protective clothing including coats, shoe and head covers, and proper respirators.** All operations must be evaluated and the question asked "What, if any, is the over-all possible internal hazard to the individual, both under normal operating conditions and in the event of an accident?"

Permissible limits for external exposure have also been established by the National Committee on Radiation Protection and Measurements. It is apparent that alpha and beta emitting materials offer no great problem from the standpoint of the external hazard. However, working with gamma isotopes in the larger amounts usually requires consideration of such factors as the amount of activity, shielding, distance and working time. Since the distance factor is so important in reducing whole body dose, some very simple devices have been designed which permit the operator to accomplish certain jobs three feet away from the source of radiation.

Permissible Exposure

The latest trend in the considerations on maximum permissible whole body exposure, including blood-forming organs or gonads, favors the acceptance of the 5(N-18) formula. **It states that the maximum permissible accumulated dosage in roentgens (which is a term denoting biological dose and is easily measureable) to the individual at any age is equal to five times the difference between his age and 18.**

It has been recommended that, except for establishing administrative procedures, the present permissible weekly tolerance, which is .3 R per week, be dropped but that the current 13 week permissible maximum which is 3 roentgens be retained, and that the yearly increment should not exceed 12 roentgens. Therefore, while the total accumulated dosage at any age would be fixed, the yearly increment could be exceeded in the event that such a person had some reserve to fall back on.

These new regulations, in effect, reduce the currently acceptable rate of exposure and make it therefore mandatory that good records be kept of radiation dosages on a yearly basis, and that such records always be available for reference and furnished to an individual if transferring to another radiation installation.

Dosage Measurement

There are a variety of devices which are used to measure a radiation dose to the individual. Perhaps the most sensitive and complete is the film badge. Its main element is a film which darkens in ratio to the radiation exposure. With the newly lowered radiation limits, it was necessary to increase the sensitivity previously available by this technique:

A new badge consists of a plastic holder and two separate films. Figure 1. One of these films is exchanged and evaluated every week and is indicative of any large weekly fluctuations. The other film remains in the holder for a 13 week period, at which time it is returned for processing and is interpreted as the total dose received in a 13 week period.

All photographic emulsions have a threshold dose below which exposure cannot be detected accurately and the magnitude of this dose is dependent on the film used, method of development and interpretation, but in general, varies from 20–50 mr. It is therefore obvious that even though the 13 weekly films indicate no detectable dosage, at the end of the 13 weeks the wearer may have had 13 x 50 or 650 mr of exposure for the quarter. On this basis if a badge was worn for 13 weeks and showed no detectable exposure, and since our lower limit of detection is 20 mr, then we can accurately state that the wearer was not exposed to more than 20/13 or 1.6 mr/week.

There is a problem in using a film badge service that states that their lower limits of detection for gamma rays is 50 mr. Thus, if an employee were exposed to 40 mr/week for 50 weeks, then his yearly exposure could have been undetected but could have actually been 2,000 mr.

The film badge has the unique advantage of indicating radiation exposures in the form of a permanent record. A review of the legal aspects of film service indicate that the mere subscription to a service may not be sufficient protection. In the event of litigation, the film processor's experience and technical competence may be points of issue; his methods must include the use of a densitometer and control films exposed to various types of radiation. The actual films themselves (not just the report) must be available as evidence, and identification of the film as the one actually worn by the subscriber must be positive.

Be sure the film-badge service has been designed to meet all known requirements of federal and state legislation regarding exposure records, and that all films and film

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reports are kept as evidence in the event of litigation.

There are also available to those using radioactive materials a large variety of both geiger tube and ionization chamber type instruments. The design of this equipment has been improving steadily and many reliable instruments are available commercially. Figure 2. Care should be taken in the selection of the proper type of instrument, and operating instructions must be carefully studied because of the energy characteristics of the various types of radiation. One intrument may be 40 per cent efficient in the detection of one type of particle, but only 1 per cent efficient in detecting another. Some of these instruments are discussed below.

Safety Responsibility

Many industrial plants today are beginning to use radioisotopes—but the approach is a very cautious one—perhaps like the youngster tasting a new food. Today's engineers and scientists, always looking for the new approach, invariably come around to considering the use of radioisotopes. At first a few microcuries will do, but soon many millicuries are better. According to the federal and state regulations, the plant responsibility for the safe use of these materials must be assigned to someone and this is usually the plant safety man or perhaps someone in industrial hygiene.

A trained health physicist is not essential in the greatest majority of cases and sufficient education and training can be accumulated in a short time. Training courses are available at the Oak Ridge Institute of Nuclear Studies and can also be obtained at several industrial firms and universities. A variety of literature has been published and typical safety programs applying to specific radioisotope applications may be available.

One of the very first problems in many cases is to assure management that everything is under control and that no one will get hurt. Certain of the personnel in the area will need special reassurance regarding the actual or imagined hazards. We can usually predict what the questions will be and the answers might be as follows: "No, you won't become radioactive"—or "There isn't enough to make you sterile"—or, "There's nothing wrong, that's natural cosmic background"—or "No, it can't explode."

Safety Program

In a typical limited-use industrial application the following items should be considered in organizing a good safety program.

An **isotopes committee** should be formed whose function it is to review all current and planned uses of radioactive materials. It should be composed of supervisory personnel and at least one individual who would be familiar with the over-all company program.

A **health physics committee** should be composed of supervisory personnel from all the departments using radioactive materials. The head of this committee should be a member of the isotopes committee described above. The function of this group is to set up all plant radiation safety procedures and also to directly supervise the program as it applies to their own departments. It would also have the specific function of carrying out a radiation indoctrination program on a personal basis.

Pre-employment, annual, and termination physicals are recommended for all personnel coming into contact with radiation. Such information is highly valuable since it can possibly uncover those individuals who have some fears and anxieties concerning their work as well as those who might currently be suffering from some deficiency which might under some circumstances at a later date be attributable to radiation damage. For this same reason, periodic blood counts are recommended.

All radiation surveys which are taken both on a routine basis as part of the program or as a result of certain requirements listed in 10 CFR 20 should be maintained in a permanent file. Some thought should be given to the proper type of form and should include such information as: Name of person making survey, date, instrument type and sensitivity and methods used.

A very important part of the program is to maintain a complete inventory of all radioactive materials in the plant. An accounting system should therefore be devised which will immediately indicate the amount and type of radioactive material purchased, being used, stored and disposed of.

In the event that any material is delivered to any company licensed to dispose of radioactive materials, a record should be kept of the quantities as well as a brief description of the material.

All aspects of the radiation safety program specifically as it applies to actual personnel handling procedures should be a matter of company record. Such records have a tendency to be limited in content and leave too much room for individual discretion. A typical set of instructions should include such items as:

1. Discussion of potential radiation hazards

2. Proper use and calibration of survey and personnel monitoring equipment

3. Detailed description of handling procedures for all operations

4. Safe storage of radioactive material when not in use

5. What to do in the event of an accident

Possible Accidents

Finally, and perhaps the most important aspect of any safety program is "What do you do in the event of an accident?" Accidents are bound to happen and many of us may be familiar with several that have already taken place. Such accidents could result from:

1. Spillage of liquids or powders containing radioactivity

2. Power or mechanical failure in the laboratory exhaust system

3. Evaporation of uncovered radioactive liquids

4. Radioactive powders made airborne by gusts of air

5. Chemical explosion

6. Breaks in vacuum equipment

7. Accidental volatilization of radiochemicals

8. Mechanical damage causing rupture and resulting in leakage from sealed sources, particularly radiography, clinical or beta gauge sources

9. Fires which consume radioactive materials and result in the release of radioactive gases or particles

If the proper steps are taken following an accident, a certain situation can be analagous to the dropping of a bottle of acid on the floor. If improperly handled, loss of property, materials and production time, as well as certain degrees of hysteria, can result. Such hysteria may not only be present in the plant itself but could extend to the outside community.

Experience has indicated that the over-all loss suffered is a function of the period elapsed between the time the incident took place and the time it was discovered and, most important of all, the nature of the initial corrective steps taken. An improperly devised plan of action can only serve to aggravate the situation and unfortunately a few of these instances are now a matter of record.

If I had to prepare a list of general procedures to be followed in the event of the unusual accident, it would read as in Table 2.

TABLE 2: Radiation Emergency Procedures

1. Evacuate the general area—shut off all ventilation—close all windows and doors and seal the room if possible. This should help to isolate the area affected and prevent the further spread of radioactive contamination.

2. Monitor all personnel for contamination and secure medical aid. Several tests are available to help determine the amount of material that may have been inhaled, and in some cases some corrective action can be initiated.

3. If serious enough, notify the nearest AEC office as required by law. They will generally visit the site and help in evaluating the over-all hazard as well as planning remedial action.

4. Do not attempt to re-enter the affected area—but contact a firm which is experienced and equipped to handle such a situation.

Emergency Kit

A radiation emergency kit has been developed which should be a standard item in radiation labs. It is shown in Figure 3 and is intended to include all items which might be needed should an emergency arise.

Each particular use of radioisotopes is unique in some way. Any industrial hygienist or plant safety man having some minimum amount of training, the proper instrumentation, a well developed educational and safety program can adequately manage most industrial radiation problems. Any worker in a plant, so directed, need not fear radioactive materials any more than he does working on a lathe or plugging an electrical cord into a wall socket.

From an address presented at the 47th National Safety Congress. Pictures by courtesy of Tracerlab, Inc.

Underground Storage

(from page 47)

so that each tank could be unloaded separately without undue valving and pumping operation. (See picture.)

Working with a pump manufacturer, they installed a vertical turbine pump on each of 18 underground storage tanks. Each pump has a 5 horsepower, explosion-proof motor and has a 50 gpm capacity at a T.D.H. of 195 feet. The solvents and thinners are pumped from the underground tanks as needed through as much as 900 feet of 2" pipe to the dispensing tanks in the factory. In some cases, there is an elevation of 80 feet.

A small building adjacent to the tanks contains push-button controls for the operation of each individual pump. There are also liquid level meters for each storage tank.

Since the new storage system has been in operation, Pratt & Lambert has realized that the creation of an arterial highway through their plant property, which necessitated the complete relocation of their solvent and thinner storage facilities, was indeed a blessing in disguise. Now tank cars can be unloaded several at a time by gravity. Volatile liquids are safely stored underground. Time and maintenance costs have been reduced in this particular phase of their material handling operation. Now, the whole new solvent and thinner storage arrangement is safer, more efficient, faster, and more economical.

Picture by courtesy of The Deming Co.

Spray Finishing

New guidance on the safe use of flammable materials in spray finishing is included in a revised edition of the National Fire Protection Association's standard on the subject.

The revised edition of the NFPA Standard on Spray Finishing includes new information on the storage and handling of organic peroxides which may be used in spray applications. Among other new provisions are requirements relating to piping systems containing flammable liquids for spray finishing operations.

Several changes to clarify the intent of existing provisions were made in this new edition of the standard, which is widely referred to as a guide to good practice. The standard was adopted at the recent NFPA annual meeting in Montreal.

Copies of the standard (NFPA No. 33, 44 pages, 50 cents) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

inside the trade

A line of daylight-fluorescent, high-visibility safety paints, is to be exclusively distributed to the safety industry by *E. D. BULLARD CO.* of Sausalito, California and their distributors, according to Jack Heath, Sales Manager of the *Fluorescent Product Division* of the *LAWTER CHEMICAL CO.*

The appointment of *Landon B. Atkins* as exclusive sales and service representative in the St. Louis, Missouri territory has been announced by *LEWIS-SHEPARD PRODUCTS, INC.*, Watertown, Mass., producer of electric fork lift trucks and related materials handling equipment. New and complete sales and service facilities will be maintained at *Atkins Industrial Equipment, Inc.*, 5240 West Florissant, St. Louis 15, Missouri for Lewis-Shepard customers in that area.

BOBRICK DISPENSERS, INC. New York and West Coast manufacturer of soap dispensing equipment, recently announced the appointment of *Dallas P. Fry* as Architectural Representative in the states of Maryland, Washington and Virginia, promoting the specification of Bobrick's line of liquid, lather and powdered soap dispensers.

WILLSON PRODUCTS, leading manufacturers of industrial eye, head, hearing and respiratory safety equipment, announces it held two, five-day national safety clinics at its Reading, Pennsylvania headquarters.

The schools offered an intensive, five-day training for forty top Willson counselor-representatives from the United States and Canada. It gave them new product information and sales insight aimed at more service to safety directors.

Theme of the clinics was "Safety Is Worth Working For," and the agenda included instruction, proficiency quizzes and round table discussions. The school was staffed with safety experts from Willson's own Research and Development Departments. According to Sales Manager W. C. Weeks, several clinics will be held each year.

THE GRANET CORP., Framingham, Mass., is building an addition to its plant facilities. The expansion program will increase the production space and office area by 50 percent. The company is one of the leading manufacturers of coated fabric industrial work gloves, selling through distributors throughout this country and abroad.

Ormond M. Hessler has been appointed Manager, Hood Branch Footwear Sales, and *John L. Baier* has been appointed General Manager, Sales, *B. F. GOODRICH FOOTWEAR AND FLOORING CO.*, Watertown, Mass. Hessler joined B. F. Goodrich (then Hood Rubber Company) in 1946 as Asst. Manager of Exports. Later, he worked in Sales Research and as a footwear salesman. In 1956, he was appointed Hood District Sales Manager, Dallas Branch, serving until 1958, when he was appointed Manager of Industrial Footwear and Gloves Sales at Watertown, Mass.

Baier joined B. F. Goodrich in 1949 as a Time Study Engineer and later became Sales Service Supervisor and footwear salesman. In 1957 he was appointed Supervisor of Plastic Products, and in 1958 appointed New England Sales Representative for Industrial Footwear and Glove Sales.

Douglas N. Brooks, President of *Brooks Rotameter Co.*, has announced an important change in this company's name to *BROOKS INSTRUMENT COMPANY, INC.* The new name is more definitive of the company's expanded activity and broader service. Mr. Brooks has also announced an expansion program which includes a 7000 sq. ft. addition to its Hatfield Plant. He also stated that excellent progress is being made with a new Canadian plant as well as plans for other manufacturing facilities.

Herbert D. Setlow, president of *M. SETLOW & SON, INC.*, manufacturers of flameproofed, chemical-resistant work clothes, has announced that the company's plant in New Haven, Connecticut, will soon be moved to new quarters in Orange, Conn., just outside New Haven, where improved facilities will make possible increased production of specialized work clothes.

The appointment of *Frank S. Drake* as director of marketing of the *FALCON ALARM COMPANY, INC.*, Summit, N. J., manufacturer of Freon-powered signaling devices for home, marine and industrial safety, was announced recently by C. E. Graham Reeves, company president. Mr. Drake, replacing Charles P. Sagar, formerly vice president, who has resigned, will be responsible for the sales and promotion of all Falcon products. He will direct the company's advertising and merchandising program, and also will coordinate the work of dealers, distributors and agents handling Falcon products.

Mr. Drake, new to the Falcon organization, has previously been associated with the advertising and sales departments of the Colgate Palmolive Co., Procter & Gamble Co., and the O-CEL-O division of General Mills, Inc.

Harry E. Redenbaugh has been named vice president of *MSA International*, Division of *MINE SAFETY APPLIANCES CO.*, it was announced recently by C. M. Donahue, Division president. Mr. Redenbaugh retains his present position as manager of MSA International, which he has held since May 1957. His new responsibilities include supervision of MSA International's Export Department and seven subsidiary companies in Canada, South Africa, Scotland, Mexico, Venezuela, Germany, and Italy.

Safety Appointments

Promotion of *Carl R. Keller* to the newly created position of safety director of The Standard Products Company was announced recently by C. T. Gue, director of industrial relations. Mr. Keller has been personnel director of the Company's Port Clinton (Ohio) Division since 1943. His successor in this position will be Thomas A. Benedetto, previously an assistant in the division's personnel department.

A former mayor of Port Clinton, Mr. Keller will direct a coordinated safety program in the Company's nine manufacturing plants.

The appointment of *William A. Cavanagh* as Safety Director, Charlevoix Plant, The Budd Company, was announced recently by Robert O. Greenshields, Plant Manager. Mr. Cavanagh was formerly with the Kindy Optical Company, Detroit, as a Senior Safety Engineer. Prior to that he was employed by Cutler-Hammer, Incorporated in their Milwaukee Plant as a Safety Administrator.

He is a member of Veterans of Safety, Greater Detroit Safety Council, Industrial Relations Association of Detroit, National Safety Council and the American Society of Safety Engineers.

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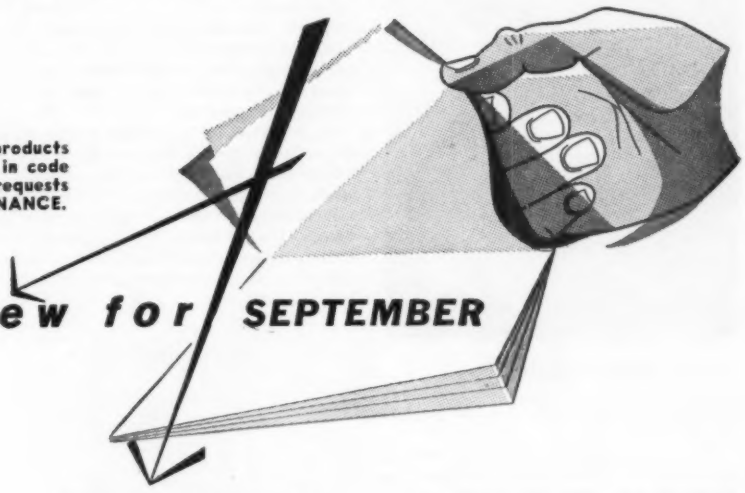


what's new for SEPTEMBER

NEW EMERGENCY LIGHT

(Use Key # 830 on Inquiry Card on page 1)

A POWERFUL emergency light, triggered on automatically by the actual light failure, is available from Marathon Industries, Inc. The portable unit, called Light Guard, also can be used as a safety light since it comes in a carrying case and its only installation is a standard wall plug. Continual illumination is furnished by a built-in sealed beam floodlight. Power supplied by an automatically rechargeable battery, or by a standard dry cell that burns for more than 12 hours.

REFLECTIVE FABRIC FOR AMBULANCE COTS

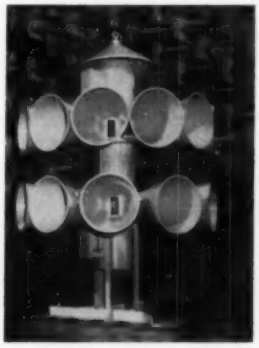
(Use Key # 831 on Inquiry Card on page 1)

A REFLECTIVE fabric for the back of ambulance cot footrests has been introduced by The Ferno Mfg. Co. Fernolite is an attractive maroon fabric which looks like an ordinary material in the daytime; however, at night it reflects light to give a safety warning to oncoming vehicles. The new fabric gives attendant and patient an extra degree of safety by reflecting headlights while the cot is being rolled across the highway or along the path of the road at night. It will also reflect the headlights of cars through the rear windows of the ambulance.

VEHICLE MIRROR KIT

(Use Key # 832 on Inquiry Card on page 1)

NO. 1545 DOUBLE EXTENSION Trailer Mirror Kit from R. E. Dietz Co. features lightweight, rustproof construction. Sturdily built of anodized aluminum, the assembly incorporates a double swivel ball and socket joint, easily permitting rigid adjustments to any angle. Included is an extendable mounting bracket for vibration free support. Non-glare, distortion-free, 5-inch mirror head permits maximum visibility. Extended length is 24½ inches, closed length is 13⅛ inches. Easily installed on all types of cars.



FIRE-AIR RAID SIRENS APPROVED FOR GOVT. FUNDS

(Use Key # 833 on Inquiry Card on page 1)

COMMUNITY SIRENS which produce three distinct signals, one usable as a fire call and the other two as air raid warnings, have been approved by the Federal government for matching funds purchase. The new units are manufactured by Federal Sign & Signal Corp. With government contribution of 40 to 45%, depending on model purchased, net cost to communities will be lower than for a single tone fire siren of comparable quality. In addition, there will be an equivalent defrayment of installation costs. The two models are rated at 115 and 125 decibels.

ROOF WEATHERPROOFING

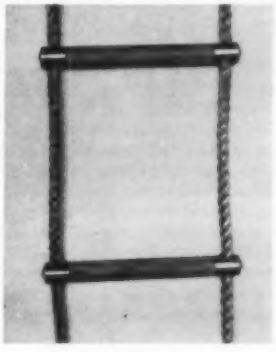
(Use Key # 834 on Inquiry Card on page 1)

A NEW, SIMPLIFIED method for waterproofing and insulating roofs on commercial and institutional buildings has been developed by Pace Products, Inc. This process specifies the use of a quick-setting bonding adhesive, Seal-Tex, into which fine spun, asphalt coated glass membrane is imbedded. A non-bleeding heavy duty aluminum roofing, Silverleaf, is then applied as the finish coat. Adhesive and glass synthesis heals surface breaks and cracks, while the aluminum shields the roof mat, and prevents oxidation. By reflectivity it provides the insulation. Treatment acts as a definite vapor barrier, keeping heat out in summer and preventing its escape in winter. Substantial savings in operating air conditioning after such a roof renewal is claimed by the manufacturer.

IMPROVED ROPE LADDER

(Use Key # 835 on Inquiry Card on page 1)

A STRONGER, safer rope ladder is claimed by the Rose Mfg. Co. The rope, which is either ⅝" manila or ½" nylon, passes through the rung and is secured to it by use of a pin. The advance cited is that the pin passes between the strands rather than piercing them. Rungs cannot come loose or slip and the ropes always retain their maximum strength.



DUST SAMPLER

(Use Key # 836 on Inquiry Card on page 1)

THIS bellows-type dust sampler offers a simple but efficient means of collecting dust samples from the air. The bellows of the Draeger Dust Sampler sucks dust-laden air through a membrane filter. The advantage of this type of filter is that it permits even separation and uniform distribution of the dust particles. Particles are deposited in airborne form and can be evaluated directly by physical and chemical methods.

The bellows (type 31), is operated by one hand. Suction is obtained by the internal springs which expand the bellows after compression. Each stroke pumps a volume of 100 cc. at a reproducible rate. The filter holder screws to the suction socket on the intake side. Leather case holds the sampler and twelve numbered filter units. The unit is available from New Jersey Safety Equipment Co.

ROUGH DUTY CONNECTORS

(Use Key # 837 on Inquiry Card on page 1)

A COMPLETE LINE of Ark-trol electrical connectors, said to meet and exceed the most rigid industrial and military standards for enviroment-resistant plugs and receptacles, is offered by Crouse-Hinds Co. Type RPE environmental connectors are moisture-proof, shock-insulated, dust-tight, and corrosion-resistant. Type RPC circuit-breaking connectors have the same features plus ability to break circuits under full rated load. These connectors are highly resistant to alkalis, strong caustics, acids, petroleum base and organic solvents. They operate in a temperature range of —80°F. to +225°F., and withstand pressure of 300 psi internal.

"Stack" construction is employed: a silicone wafer with the resilient characteristics of rubber is located between the two insulators, providing a cushion against mechanical damage.

Another feature is positive polarization; an exclusive feature of Ark-trol connectors which assures safe, correct assembly, while permitting a wide choice of contact configurations to suit all types of installations. All aluminum alloy components are high strength impact extrusions, offering greatest accuracy, strength, uniformity, and interchangeability.

NEW MAINTENANCE CLEANER

(Use Key # 838 on Inquiry Card on page 1)

A NEW CLEANER, said to solve the toughest cleaning problems, and yet be safe for all washable surfaces such as floors, ceilings, walls and machinery, is available from S. C. Johnson & Son, Inc.

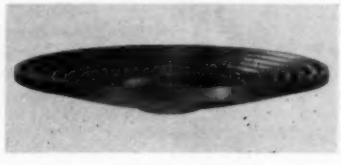
The product, Forward, has an exceptionally high alkaline cleaning power but is silicate-buffered for safety.

The balanced formula fights off the neutralizing action of dirt, it is reported, and when a mop or sponge transfers dirt to the cleaning solution, there is no fade-out of cleaning power. Effective against grease, oil and other stains, Forward is designed for problem areas in manufacturing and office buildings including floors, walls, windows, lighting fixtures, rest rooms, and locker rooms. Contains a bacterial reducing sanitizing agent.

SAFER GRINDING WHEEL

(Use Key # 839 on Inquiry Card on page 1)

NEW DISHED depressed center wheel for portable grinders, marketed by American Emery Wheel Works, is reported to have a 2:1 plus safety factor over conventional depressed center wheels. Improved safety results from the third full layer of fiberglass fabric that is molded throughout the entire bottom side of the wheel where most of the grinding stress occurs. The wheel always retains its original thickness; it cannot wear dangerously thin at the edges.



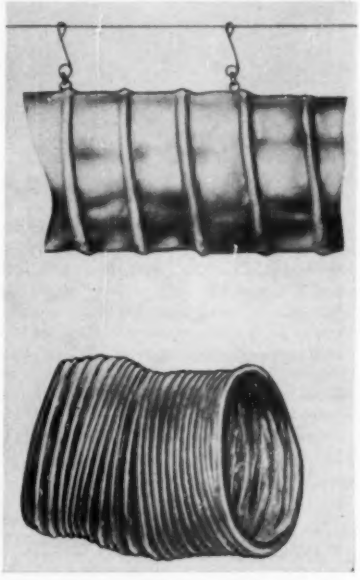
Utilizing a narrow face contact area, excessive heat build-up is cut down and the attendant danger of heat cracks and breakage is minimized even at the faster cutting speeds, while assuring faster removal of metal and longer wheel life without loss of grinder power or cutting speed.

Initial contact angle is held down to 2°–3° from horizontal. Operator fatigue is definitely reduced and far less hand pressure is required to hold the grinder steady. There is no tendency for the wheel to "skitter" or "bounce." For use with all standard adapter assemblies.

MEMBRANE FILTER REMOVES MINISCULE MATTER

(Use Key # 840 on Inquiry Card on page 1)

A PLASTIC filter capable of removing sub-micron matter from fluids and gases has been developed by Gelman Instrument Co. Tiny uniform holes can remove even the smallest virus particles from solutions. Its smooth surface makes it especially suitable for examination of contaminants in air, fuel and hydraulic fluids. The new membrane filter has a wide range of applications in the fields of air sanitation, medical research, industrial hygiene, chemistry, engineering, etc.



NEW VENTILATION TUBING

(Use Key # 841 on Inquiry Card on page 1)

A SPIRAL WIRE reinforced flexible ventilation tubing, designated type MD, has been introduced by American Brattice Cloth Corp. The wire is completely covered to prevent rust or erosion. The tubing is made of spirally wrapped heavy cotton fabric, coated throughout with Neoprene. It is reported to be air-tight, mildewproof, wear- and flame-resistant. Color is yellow for high visibility. Can be used in temperatures ranging from —40°F. to +250°F. Available in convenient, easily coupled

lengths. May be hung in either horizontal or vertical position. Suspension hooks are supplied.

Type MD tubing weighs only a fraction of metal pipe and can be installed by one man. Lengths of this tubing are retractable for carrying or storage. Applications include temporary heating, such as during construction, ventilation of manholes, tunnels, ship holds and tanks and large furnaces undergoing repair; also exhausting of smoke or fumes from welding operations, metal pouring, lead burning, etc.

NEW FLOOR ENAMEL FOR CONCRETE SURFACES

(Use Key # 842 on Inquiry Card on page 1)

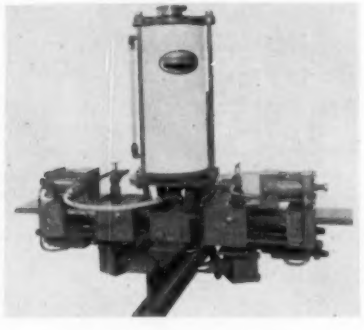
A NEW non-toxic isocyanate floor enamel said to offer greater toughness, flexibility, abrasion and impact resistance is being manufactured by Pittsburgh Plate Glass Co. The product, Durethane Enamel, is designed for concrete surfaces. The company states that industry-recognized laboratory tests have proved the enamel to be 15 to 20 times tougher than the best conventional floor paints and to possess three times the abrasion resistance of all floor coatings tested. The two-component finish may be applied by brush, spray or roller coater. Surface preparation is no more involved than for ordinary concrete finishing except that on old floors previous coatings should be removed with a rinse-away paint remover. Two coats of the finish are recommended. The paint dries overnight and can be walked on freely. It attains maximum toughness after several days.

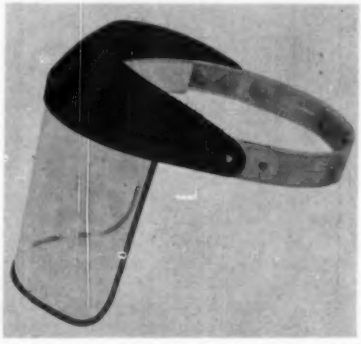
NEW CONVEYOR LUBRICATOR

(Use Key # 843 on Inquiry Card on page 1)

A NEW NOZZLE design speeds up the operation of the 900 Series Automatic Conveyor Lubricators, announced by J. N. Fauver Co., Inc. By minimizing the weight of the moving mass, the return of the nozzle into the "ready" position takes only a fraction of a second which provides for lubricating even the fastest moving conveyors. The lubricator is a self-contained unit mounted on a trolley rail and actuated by the moving conveyor. As the trolley wheel approaches the lubricator, it engages the nozzle of the pumping unit which is then automatically brought in contact with the grease fitting; a measured amount of lubricant is discharged under pressure into the wheel bearings.

At the time the lubricant is discharged, the nozzle is tightly sealed against the grease fitting and a positive shut-off valve in the nozzle eliminates drippage. A 12-pound reservoir and air control panel are furnished as standard equipment and this type of lubricator requires only compressed air for its operation. Each unit is completely adjustable as to the quantity of lubricant discharged into each wheel bearing. Range 0 to .1 cubic inch. Grease or oil is supplied at a constant pressure, determined in accordance with viscosity of lubricant used.

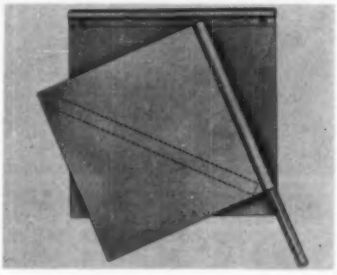




LIGHTWEIGHT FACE SHIELD

(Use Key # 844 on Inquiry Card on page 1)

DESIGNATED Feather-Lite F-90, a low-priced face shield manufactured by Fibre-Metal Products Co. weighs only 3¼ ounces complete with a 6" x 11½" x 0.020" window. It features replaceability of any of its parts and enables the use of a great variety of windows or screens. Headband (adjustable in ⅛ths from 6⅜ to 8) of pliable polyethylene assures perfect fit. It will not mildew, rot or sour and may be cleaned with any detergent or soap. The vulcanized fibre deflector will accommodate even the largest spectacle frames. Window-deflector section pivots easily and remains secure.



FLUORESCENT DANGER FLAGS

(Use Key # 845 on Inquiry Card on page 1)

A LINE OF flame red warning flags for street, highway and plant use has been announced by the Albert W. Pendergast Safety Equipment Co. They provide much higher visibility and give added assurance of being seen at a distance. The durable and long wearing markers are made of fluorescent vinyl bonded to both sides of a nylon base fabric.

NEW TRAFFIC FLASHERS

(Use Key # 846 on Inquiry Card on page 1)

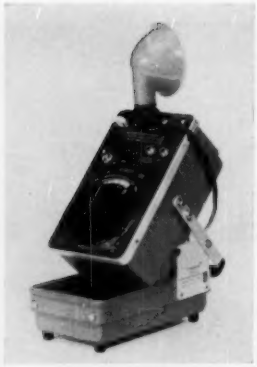
THREE NEW MODELS of portable flashing light traffic safety devices have been announced by Cripe Tool Mfg. Corp. The Safe-T-Blink models are transistorized. Current is furnished by two standard lantern-type 6-volt batteries which are reported to operate a minimum of 1,500 hours before replacement is required. Twin, seven-inch plexiglas lenses provide two-way visibility at better than one mile. From 50 to 70 flashes per minute are emitted by these units.

INDUSTRIAL INCINERATOR PROVIDES POLLUTION CONTROL

(Use Key # 847 on Inquiry Card on page 1)

DEVELOPED IN cooperation with various air pollution control authorities, Trio Process Corp.'s Portable Incinerator effects complete combustion of various materials without offensive smoke and odors to irritate residents in the immediate area. The gases leaving the incinerator are colorless and odorless. The unit is primarily designed to reclaim large quantities of copper wire by burning off the insulation. Current reports indicate a capacity of up to 15 tons of insulated copper wire in 12 hours.

The portable incinerator is undergoing tests for additional uses such as the burning of auto bodies, demolition debris, and waste materials in localities exercising strict air pollution control. The after-burner section of the unit uses gaseous fuel, either LPG, natural, mixed, or manufactured gas. Fuel is supplied through sturdy wire-reinforced hose for ease of handling.



NEW TACHOMETER

(Use Key # 848 on Inquiry Card on page 1)

A NEWLY DESIGNED version of the Strobotac stroboscopic tachometer, widely used in the mechanical and electrical industries for the measurement of rotating machine-part speeds and observation of their operation in slow motion, has been announced by the General Radio Co. Small and portable, the new model (Type 1531-A) features a fundamental speed (flashing-rate) range of 110 to 25,000 rpm and brilliant white-light flashes with extremely short duration—1 to 6 microseconds—permitting fast action to be "stopped."

A specially-developed Strobotron lamp produces the high-intensity flashes with peaks of 0.21, 1.2 and 4.2 millioncandle-power on three speed ranges; high (4000–25,000), medium (670–4170) and low (110–690)—the single flash-rate peak is 7 millioncandle-power. An electron pulse generator controls the flashing rate. The light can be directed toward practically any point. Speeds of up to 250,000 per minute can be measured by using flashing rates that are submultiples of the speed to be measured.

LITTER COLLECTOR

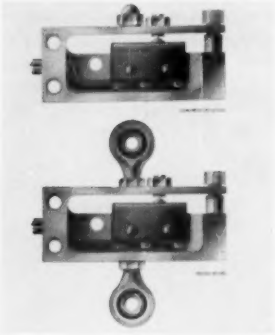
(Use Key # 849 on Inquiry Card on page 1)

A DOUBLE CANE arrangement, combining a sharp point for picking up papers, and a spring action metal finger for grasping bottles, cans and other such objects, is known as Stick'n pick. Designed by company of the same name for use in parks, industrial plants and other areas, device eliminates stooping and protects workers from cuts or ailments encountered when refuse is collected by hand. Made of steel and aluminum, with plastic-covered handles; weight one pound.

MINUTE CONTROL SWITCH

(Use Key # 850 on Inquiry Card on page 1)

AUTOMATIC STARTING and stopping of motors, activating of equipment in sequence, tripping of relays and registering of warning sounds or visual signals are typical of the many applications for which the new Force Control Switches, manufactured by W. C. Dillion & Co., are said to be suited. Their versatility and sub-miniature dimensions (approximately 1⅞" x 5/16" x 1") allow mounting in the most crowded quarters. Weight is only ¼ ounce. Accuracy is within ½ of 1%.



Three different capacities are offered in the sub-miniature line: 0–5 lbs., 0–30 lbs., 0–100 lbs. These can be set to operate at any desired point within their respective ranges; viz: the 5 lb. capacity can be set for 1, 2, 3, 4 or 5 lbs. All units are calibrated for any specified operational point prior to shipment. Sealed weights are used, and either tensile or compression models can be supplied. Other switches in capacities up to 50,000 lbs. are also available.

MOTORIZED SHELF TRUCK

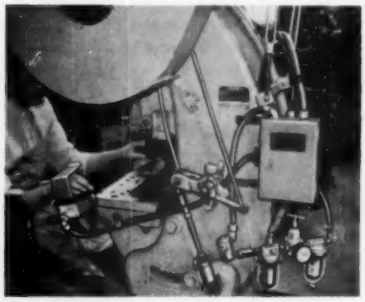
(Use Key # 851 on Inquiry Card on page 1)

A WALKIE-TYPE electric powered shelf truck with drive and steering controls at each end for convenience in operating in narrow aisles has been developed by Lewis-Shepard Products, Inc. Shelves can be made with various widths, lengths and vertical dimensions to suit the product handled. Applications include delivering tote pan loads of small parts to work stations, as a general service truck, or for order selecting and handling small packaged items in less than pallet load quantities.

IMPROVED FIRE HOSE NOZZLE

(Use Key # 852 on Inquiry Card on page 1)

A MORE EFFICIENT fire hose nozzle developed by The Fyr-Fyter Company, the Wooster Uni-Flo incorporates the advantages of a modern combination fog and straight stream nozzle. Feature innovation is the fact that the nozzle delivers the same gallons-per-minute water flow on all settings. The nozzleman to meet different fire fighting situations can easily shift from straight stream to 15°, 30°, 60°, or 90° fog patterns without any change in GPM output. The company states that there is no fluctuation of pump operating pressure; claims complete accuracy of mixture when metered wet water is being applied through the line. Available in a selection of sizes from ¾" to 2½" in a constant-flow capacity range from 18 GPM to 250 GPM. Uni-Flo nozzle tips and cushion-ball shut-off valves can be secured separately.



POWER PRESS CONTROL

(Use Key # 853 on Inquiry Card on page 1)

A COMBINATION two-hand electric control with timer and an automation control has been announced by Searjeant Metal Products Co. The control box automates certain stamping and punching operations. Used as a two-hand control, the circuit is designed so that both palm buttons must be pushed within a pre-determined time, making it impossible for an operator to tie down one button and trip the machine with the remaining button, even for the first stroke.

Actuating switches may be attached to certain dies and plugged into control box in place of the palm buttons. The stock will automatically actuate the switch and trip the press only when it is in correct position. This avoids spoilage and results in an estimated increase in production of as much as 30%.

FIRE RESISTANT TILE

(Use Key # 854 on Inquiry Card on page 1)

FIREPROOFER TILE for use where a single unit nominal six-inch wall with two-hour fire resistance rating (unplastered) is required has been announced by Natco Corp. Extensive research and development are reported to have proved the tile particularly suited for installation in stair wells, elevator shafts, fire walls, and partitions. Full-size 10 x 10-foot panels withstood a maximum temperature of 1875

degrees F. on the fire-exposed surface for two hours and 23 minutes, the company stated. This was followed immediately by the severe thermal shock of fire hose stream test at a nozzle pressure of 30 pounds per square inch for two and one-half minutes without leakage or severe damage.

Natco Fireproofer units are being made available in the "6T" series (5 1/16 x 11 3/4-inch face size) with cored shells and three cells in wall thickness. A variety of ceramic glaze finishes are available on the select surface only, with smooth unselected, unglazed back. Backs with scored surfaces for plaster application will be available on special order. Tile is also available in a buff unglazed material.

WELDING FUMES EXHAUSTER

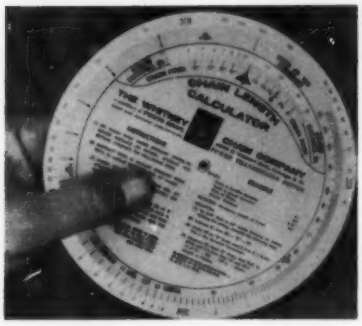
(Use Key # 855 on Inquiry Card on page 1)

A SIMPLE ECONOMICAL dual table installation to clean air in welding shops has been announced by Car-Mon Products, Inc. Unit not only removes poisonous fumes, but, by saving estimated 80% of the heat lost through conventional ventilation, also reduces fuel bills. A lifetime-magnet base holds the receptor intake securely right on the work, or on any nearby metal. At-the-source suction draws off all fumes directly, before they come to the welder's breathing line. Long, flexible weldproof tubing permits fast, easy positioning of the receptor in a wide work range. A single fan draws off all gases, smoke, heat and fumes from both receptors. Heavy-duty construction keeps maintenance low.

CHAIN LENGTH CALCULATOR

(Use Key # 856 on Inquiry Card on page 1)

A PRECISION chain length calculator which finds correct chain lengths in pitches and inches is offered by Whitney Chain Co., a subsidiary of Foote Bros. Gear & Machine Corp. Said to have the accuracy of a 14-inch slide rule, the calculator eliminates any need for formulae or correction tables. It is made for Whitney by a producer of military navigational aids and computers.



ROOMIER AMBULANCE

(Use Key # 857 on Inquiry Card on page 1)

A NEW CONCEPT in ambulance styling and utility-engineering has been introduced by Shop of Siebert Associates, Inc. Extra

large rear compartment can accommodate three patients and attendant and provides a new "high" in ambulance head room. Head height is 45 1/4 inches and the length is 127 inches at belt line from center door post to rear door. In addition to extra spaciousness is an equally large side opening rear door with opening that is ample to allow for easy handling of cots and greater maneuverability of ambulance personal; opening is 40 1/2 inches clear height by 43 1/2 inches clear width.

The problem of hinging rear doors on modern design cars was completely eliminated by a new interior heavy-duty "swing-out" hinge that takes the stress off the body frame and places it solidly on the compartment floor. Hinges have bronze bushings for quiet, easy door operation without need for lubrication. "Swing-out" has been established at a practical angle to remain in position when open for loading.

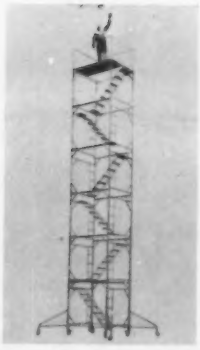
The overall length of the ambulance is 248.7 inches—overall width 81.5 inches. The unit is said to have excellent maneuverability with balanced body weight that does not create top-heaviness.

RADIATOR SAFETY CAP

(Use Key # 858 on Inquiry Card on page 1)

A PROTECTIVE TYPE radiator pressure cap for automotive vehicles has been designed by Stant Mfg. Co. to guard against scalds and burns of arms and hands when removing the cap of a boiling radiator. Lev-R-Vent is built to original equipment standards into the Stant Evrseal pressure cap mechnism.

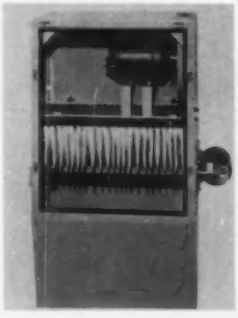
When the lever is lifted, it stays up; steam and heat are dispatched through the overflow radiator tube. The fast "blow-down" operation occurs while the service man or owner carries on other duties. When cap is turned to remove, lever snaps down at a touch.



DOUBLE WIDTH SCAFFOLD

(Use Key # 859 on Inquiry Card on page 1)

A NEW STEEL scaffold offering increased work platform area has been introduced by Baker-Roos, Inc., for work at greater heights. End frames are welded assemblies, part of which is a built-in ladder for access to the platform area. A stairway is offered as optional equipment. It locks into position on the inside of the scaffold unit and provides easy access to platform levels. Platforms and platform support trusses of the standard Baker scaffold may be used with the new Model K. Single unit is 6 feet high. Additional heights may be reached easily by stacking. Scaffold is listed by Underwriters' Laboratories.

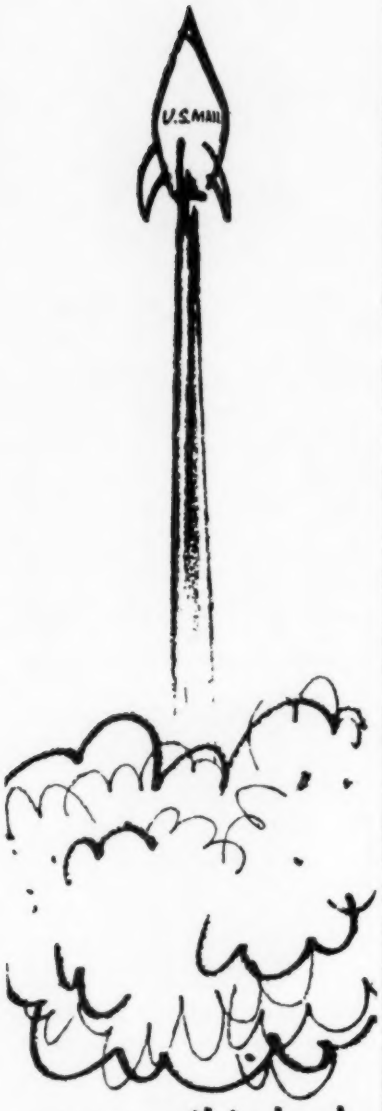


AUTOMATIC FILTER SHAKER

(Use Key # 860 on Inquiry Card on page 1)

A NEWLY DEVELOPED automatic filter shaker is now available on all models of cloth filter type dust collectors made by the Torit Mfg. Co. In addition to assuring peak operating efficiency by thoroughly shaking the filters each time the dust collector is used, the self-cleaning device is said to eliminate the chance of a workman forgetting to manually shake the filters when the need arises.

The automatic shaker is powered by an independent electric motor mounted on the side of the collector. When the shaker bar is oscillated horizontally, its metal fins strike each cloth filter bag to free the dust particles and cause them to drop into the dust tray. Shaking action begins automatically whenever the collector motor is turned off. After shaking the filters for two minutes, the mechanism shuts itself off and will not operate again until the collector has been turned on and off again. Available with single phase, 110 or 220-volt, 60-cycle motors, the shaker can be used regardless of the voltage of the collector.



zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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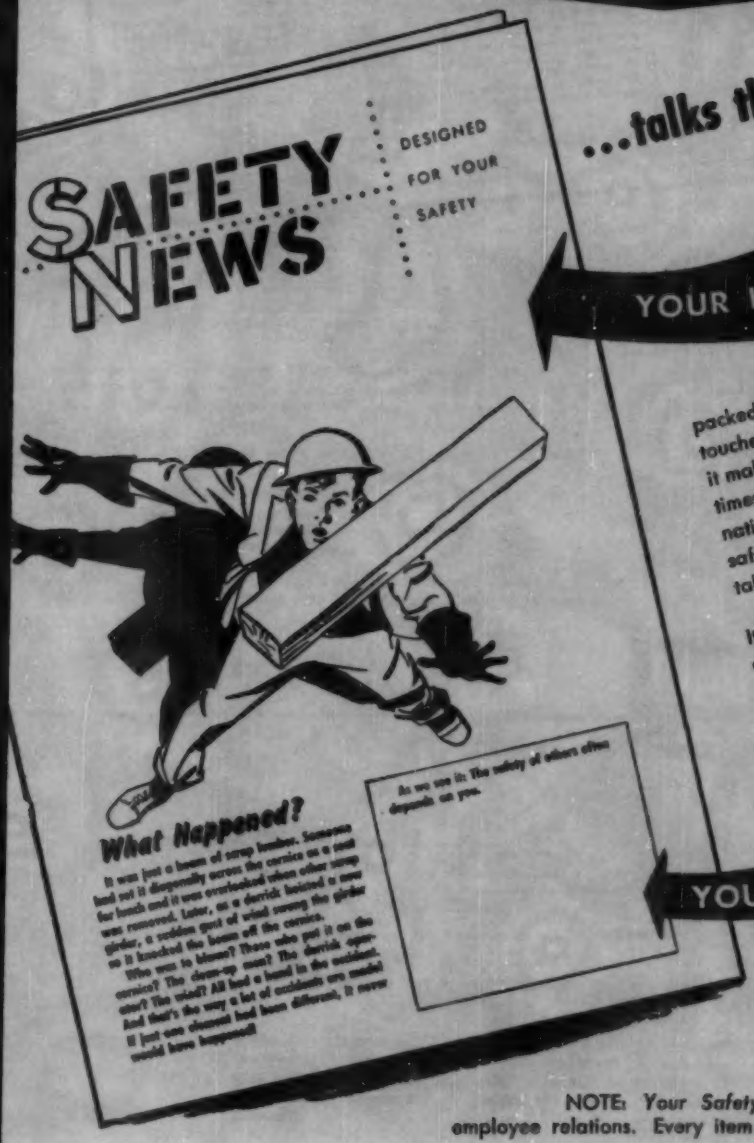
SEND THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealling . . . vivid . . . engaging . . . colorful!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!



. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make Your *Safety News* your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a dangerous rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, perfectly odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . as can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or body muffler. Play it safe:
1. Be sure your muffler and exhaust are in good condition. They can leak long before they become noisy!
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but ability only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below:

Item (1) FIRM NAME: Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE: (If Desired). On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

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☐ Special Imprint ☐ Standard Imprint

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Item (2) (If Desired). Please imprint the name or signature shown on the attached sheet of white paper or the following: _____

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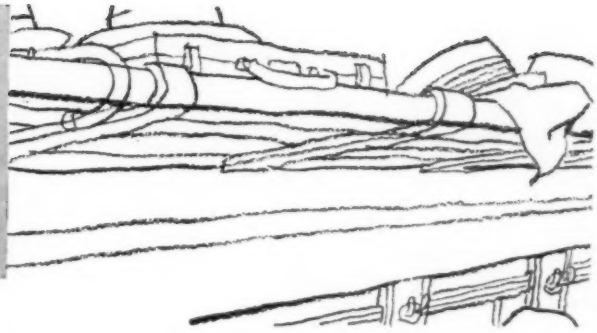
No. Copies Per Month	Your Special Imprint	Standard Imprint	No. Copies Per Month	Your Special Imprint	Standard Imprint
6,001 copies and over	2½¢ each	2¢ each	200 to 500 copies	5½¢ each	4½¢ each
3,001 to 6,000 copies	3¢ each	2½¢ each	100 to 199 copies	6½¢ each	5¢ each
1,001 to 3,000 copies	3½¢ each	3¢ each	25 to 99 copies	**	5½¢ each
501 to 1,000 copies	4½¢ each	4¢ each			

** 5½ each plus $3.50 per month. For Special Imprint. F.O.B. New York, N. Y.

"When you put in the Payroll Savings Plan...



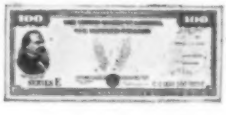
Did your people complain about being solicited?"

"Definitely *not*, Art. Of course we didn't allow our person-to-person talks with employees to approach 'pressure.' We *invited* our staff members to share in the convenience, sound thrift and personal satisfaction of this plan for investing in U. S. Savings Bonds.

"Actually, most of our people took it as a compliment, and I am sure many of them enjoyed the secure feeling of 'belonging' to the organization which this plan gives them."

If your Company has not installed a Payroll Savings Plan as yet, or if you would like to have a greater participation in your organization, contact your State Savings Bonds Director. He is an expert in helping you present this sound, systematic saving plan to your people as a privilege they are entitled to share. They'll be proud to become shareholders in America. You'll be proud, too.

ALL U.S. SAVINGS BONDS—OLD OR NEW—EARN ½% MORE THAN BEFORE



SAFETY MAINTENANCE

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